



Wise Traditions



IN FOOD, FARMING AND THE HEALING ARTS

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President's Message


This issue of *Wise Traditions* focuses on the subject of water—one we have wanted to tackle for many years. We publish these articles with much thanks to our presenters in the water track of our latest Wise Traditions conference. Professor Gerald Pollack of the University of Washington has led the way in elucidating the unique properties of water, showing that water structures itself against a hydrophilic surface—which could be anything from air to waxed paper to an artery wall—creating a separation of plus and minus charges. This “fourth state” of water helps explain many phenomena—from a stone skipping on the surface of a lake to blood cells flowing through tiny capillaries. The water in our cells exists mostly in this fourth state, providing a kind of battery for many cellular processes—it is indeed quite accurate to describe the water in plants, animals and humans as “living water.”

Professor Marty Michener explores the subject further, with explanations of how water's properties keep our blood cells in suspension, and how they coagulate and clot under adverse circumstances—such as a dose of aluminum from a vaccination.

Norm LeMoine talks about what's in our water—from chloramines to antibiotics to untreated sewage—and what we can do about it.

We are also happy to introduce a new writer for these pages, Merinda Teller, MPH, PhD, who will address current issues in her column “Reading Between the Lines.” In this issue she looks carefully at the recent WHO pronouncement against red meat, a healthy food the medical establishment loves to attack.

For those of you who were not able to attend Wise Traditions 2015—we missed you! Our speakers were uniformly outstanding this year, and so was the food. And we enjoyed meeting many new exhibitors. Next year's conference is scheduled for November 11-14 in Montgomery, Alabama. Montgomery is about equidistant from three of our largest membership areas—the Mid-Atlantic, Texas, and Florida, and has good air service. Hotel room rates are very reasonable at the Renaissance Montgomery Hotel.

It's hard to believe another year has passed! Here at WAPF, we've been busy, keeping up with countless requests for information, issuing three new flyers (see page 10), submitting comments on the Food Safety Modernization Act on raw cheese, and on the 2015 USDA Dietary Guidelines, moving forward with our petition to remove the “heart healthy” label from soy foods, and keeping up with our huge website and popular Facebook page. We could do none of this without the support of you—our members! We wish you all good health and much happiness for the holidays and throughout the new year. 



Letters



VACCINE CHOICE IN CANADA

Thank you for the vaccination issue of *Wise Traditions* (Summer 2015). On page fifteen is a list of vaccine websites, which are all very good. However, you haven't included the website that specifically informs about vaccines in Canada's schedules. Please add www.vaccinechoicecanada.com to your list. It provides an extensive list of links to other excellent websites.

Name withheld

Thank you for letting us know about this excellent website for Canadians. We have added it to our list of recommended websites on the vaccine issue at westonaprice.org/vaccinations/.

BREASTFEEDING VERSUS FORMULA

Having now read most of "The Scandal of Infant Formula" by Dr. Sylvia Onusic (Fall 2015), the horrendous damage to our youth, through not breastfeeding, is much more apparent. Phenomenally researched and covering many, many aspects, I applaud her for digging into the dirt on this subject.

Page forty-nine got me pondering in another direction, though. Dr. Onusic advocates establishing and strengthening governmental handouts to pregnant mothers in the form of longer maternity leave and governmental regulation requiring private businesses to extend or further subsidize maternity leave.

While I fully agree that maternity leave should be lengthy, I'd prefer to see the great work of mothers keeping a home to be cherished rather than blown off, as many do, with new mothers returning to work as the most important

factor involved. I think that privately owned businesses should voluntarily support the raising of children in ways that are workable for each company.

Emphasizing the role of government on this issue, though, is like asking the Big Bad Wolf to guard Little Red Riding Hood. On one hand, Dr. Onusic rails against components of the government, such as the FDA, then turns around and rails against governments who don't provide or regulate enough.

Picture a cartoon of a sow (labeled Government) with far too many suckling piglets to support. Each piglet has a label: FDA, Wall Street, AMA, APA, "affordable" "health" "care," lobbyists, welfare recipients, special interests, minorities, class warfare, "education," the food pyramid, the military industrial complex, etc. They all want more and more, but there's never enough. Another piglet (Mothers for More Maternity Leave Benefits) sits to the side crying.

If we were all raised on mother's milk from healthy mothers, there surely would be fewer of us crying for more handouts and protections from a nanny-state government. We would be strong and free, with a small government that benefited us. The solution is to educate on a broad scale so as to raise the understanding of those individuals who support the children who are our future, which the WAPF does so admirably.

Janice McLain

Colorado Springs, Colorado

SUCCESSFUL BREASTFEEDING

Recently I came across a paper copy of the excellent article, "Successful Breastfeeding. . . and Successful Alternatives," written by Sally Fallon

and Mary Enig, and published in the Fall 2001 *Wise Traditions*. In a sidebar to this article, not available online, Sally talks about the Lact-Aid, a device for feeding homemade baby formula while continuing to breastfeed, which she herself used successfully. The Lact-Aid is still available at lact-aid.com.

My only regret is that I didn't know about this device when my boys were infants, as well as the homemade formula recipes, which can be used alone or with the Lact-Aid. I think that this article in particular is worthy of a reprint in a future issue of *Wise Traditions*.

Sylvia P. Onusic, PhD, CNS, LDN
Portage, Pennsylvania

DIET FOR ECZEMA

My son developed eczema when he was fifteen months old. His pediatrician and pediatric dermatologist prescribed topical steroids. We followed their advice, applied steroids, and his skin became worse. They continued to prescribe, and we continued to apply, topical steroids for his "worsening eczema." We watched our son's skin become worse and worse; his quality of life was next to nothing. He could not play by day as he was scratching endlessly. He could not sleep at night due to incessant scratching. His conventional doctors suggested Protopic, a topical immuno-modulator. We declined this recommendation and sought treatment from alternative doctors.

Gifts and bequests to the
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will help ensure the gift
of good health
to future generations.

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For the next year or two we worked with a naturopath, homeopath, and chiropractor. Many of their suggestions centered around dietary changes which we implemented promptly and strictly. Unfortunately, his skin was still red, rashy, bloody, and itchy, from head to toe. So we went back to the dermatologist and for many months applied Protopic and topical steroids and still his skin worsened.

We then learned about functional medicine and sought a practitioner in our area. She mapped out a protocol for our son which included omitting all inflammatory foods (gluten, grains, dairy, eggs, soy, citrus, nightshades, chocolate, nuts and sugar) building his immunity, and healing his gut. For many weeks we did not notice any improvement.

After five months, and for the first time in years, we noticed a hint of improvement. His body was beginning to recover from the inside. We were able to discontinue his topical steroids which triggered the start of his Topical Steroid Withdrawal. It became apparent that

what started as eczema when he was fifteen months old became Topical Steroid Withdrawal, aka Red Skin Syndrome. The withdrawal that ensued caused more red, bloody, itchy, rashy skin. Finally, after three years of following this approach and stopping all steroids, he is in better health now at eight years old than he has ever been.

In hindsight, we believe our son's path to good health was twofold; first he had to heal his gut and eliminate inflammatory foods, and second he had to discontinue use of all topical steroids. If anyone has questions about how to treat their chronic illness, please have them research functional medicine and visit a practitioner in their area. If they suspect they have Topical Steroid Withdrawal, visit ITSAN.org (International Topical Steroid Awareness Network) for more information. Thank you!

Amy Landau
Austin, Texas

STRAWMAN

I received the latest *Wise Tradi-*

tions (Fall 2015) and was amazed that a person who claimed “legal knowledge” had taken issue with the concept of the strawman! They stated: “The state owns the birth certificates but the parents own the children.” Not so! I don't know which “law” they are getting their errors from but these are the facts:

When a baby is born, the parents are told that they must sign off on the birth certificate. One mother refused to do this and was threatened that her baby would be taken into “protective custody” until she relented and signed the form. This is fraud and attempted theft/kidnapping of baby, coercion-extortion and unlawful use of force. The reason that the birth certificate is so important to the authorities is because it creates the strawman that the government uses to control and enslave us. The “name” on that certificate is in all capital letters, which in law language, signifies a corporation, not a living person.

The birth certificate is then sent to the registrar of the probate court. Why? What does a probate court, which han-



THE MARY G. ENIG INTEGRITY IN SCIENCE AWARD

Winners of the coveted Integrity in Science Award for 2015 are Beverly Rubik, PhD, (left) for her work in microscopic blood analysis and Alan Savory (right) for his work in rotational grazing and holistic management.



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dles a person's estate after death, have to do with the birth certificate? Is it because the baby is considered a corporation, and therefore not a live person?

And why would a newborn baby who has parents be listed in an orphan court? I know the answer but others need to figure it out to get educated. The government, by filing this document in all capital letters, creates a corporation, a cestui que vie trust allowing the government to take sole control of the estate of this person through the corporate strawman that they just created.

In addition, certified copies of all birth records are filed in the United States Department of Commerce as registered securities. That certificate is assigned a value—it used to be one million dollars—which the U.S. government can sell to raise money to spend any ole way they want to! We are registered, owned as a government corporation, horse traded, and die in debt slavery from the very day we are born.

Edward Anderson
Savannah, Georgia

FERMENTED COD LIVER OIL AND HEART ATTACKS

I know you probably have received a lot of feedback regarding the recent fermented cod liver oil issues. I have been taking the Green Pasture fermented cod liver oil on and off for the past four years and have noticed a great improvement to my health including menstrual pain fix, sleep and acne improvements.

I don't know what to think about all of this debate. I don't know the politics of it, nor do I know what science defines as "rancid" or not, but I'm sure some would say that fermented cabbage or raw milk is "rancid" also. One individual accuses this product of causing his heart failure. I just wanted to write in and share a similar story, but with the opposite effect.

If this person is going to use non-scientific anecdotal evidence to convince a community and to claim that his heart failure was due to one small change in his diet a few years ago, then I am going to use anecdotal evidence (with some scientific research) to argue

against it. I find it sad that he is able to sway so many people when his evidence for heart failure was an "epiphany."

I am wondering how much of his heart failure is a predetermined genetic issue (as enlarged hearts are—and he says he had an enlarged heart) and due to the fact that he is a strong believer in paleo-esque diets. About four years ago I too experienced heart failure/heart attack. At the time I was not taking FCLO. I was twenty-six years old and otherwise healthy—not overweight, a non-smoker, non-drug user and I exercised. What I had started doing was following a primal/paleo/GAPS diet and had cut down on carbs and removed grains. I too felt extremely tired and fatigued and did not have energy to walk to the mailbox. My extremities ached and I couldn't concentrate or sleep. At the end of it all I ended up in hospital—a very similar situation to that of the individual blaming fermented cod liver oil.

I talked to several heart doctors and blood specialists and they were quite baffled. In the end several concluded

ACTIVIST AWARDS

Left: Winners of the 2015 Activist Awards (or their representatives) receive applause at the 2015 Awards Banquet. The winners were Kathy LeMoine, Hillary Boyton, Hilda Gore, Mary Gercke, and Christina Hildebrand.

WILD SEAFOOD AT THE CONFERENCE

Right: Sally Fallon Morell with Keith Singleton of Alaskan Leader Seafoods. Alaskan Leader generously donated wild cod for the banquet appetizer and smoked wild salmon for the Sunday brunch.



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that cutting out carbs is a major cause of electrolyte imbalance (low potassium, etc.) and can cause heart attacks (blood clots, heart malfunction, etc.) as our heart is an electrical organ. I found several studies and evidence online showing that when your body doesn't get carbs, it converts glycogen in the liver into energy and while under ketosis your body starts eliminating the water that used to be attached to the glycogen, so you urinate more and you lose more electrolytes. (A month before ending up in hospital I kept a detailed list of what I ate—so there is that evidence, too.)

Back when my heart event happened, I found a few other articles linking low-carb diets with heart issues—one involved a sixteen-year-old girl. I often hear on the TV here about young, “healthy” individuals having heart attacks and dying while in sporting events or marathons (losing electrolytes through sweat). I wonder whether these individuals are on the new paleo/ low-carb fad.

Anyway, after my heart experience, I started taking fermented cod liver oil because it actually helps thin the blood and helps with heart issues. I have not had any heart issues since because I once again started eating carbs. I find it sad that this individual has never looked into any other cause of his heart issues, and immediately is pointing the finger at fermented cod liver oil without looking at other changes in his diet.

Name withheld

TRENDY DIET

The paleo diet is oh so “trendy,” but it really is such nonsense—lots of young, cross fit men who eat paleo bars and protein shakes all day. Name one

global cuisine that would survive a paleo inquisition, and how many artisan food production techniques would be considered sacrilege. I can't understand why people do not see that. No sourdough bread and properly prepared grains, which are the cornerstone to most cuisines. Do these people even know what they stand for and what this crazy purge of thousands of years of human development would entail?

We need to make neolithic as trendy as paleolithic, noting that the boundary between the two is actually quite blurred, because neolithic man did still hunt and gather for a proportion of his sustenance, making it feel just as ancient and enduring. I think it can be done, noting the great advantage that farming brought to communities and civilization.

Some evidence that human brains can be just as big as that of paleoman on a WAPF diet would be useful, because that is their main argument, but I suppose that there may be a way to interpret the cubic capacity of the brains of folks Price saw versus modernized people with thin jaws? That would nail the argument I believe. Is there a scientist around who could estimate the cubic capacity of the grain-consuming tribes Dr. Price saw? Because the idea that paleo man had a bigger brain than neolithic man is really the only “evolutionary-de-evolutionary” argument the paleo people have.

Philip Ridley, Chapter Leader
London, UK

GcMAF

The spate of natural doctors' mysterious deaths, many called suicide—including one who supposedly shot himself in the chest and then jumped

off a bridge, something suicide victims cannot do—suggests something much more sinister going on at the top of the power pyramid of pharmaceutical, medical and government influence. In every case, they were visited by the FDA just prior to their demise, and the common thread among all of them is that they were working on a protein naturally produced in the body called GcMAF (globulin component macrophage activating factor). This valuable protein binds the macrophage activity—one of the most critical in the immune system—to vitamin D, thereby empowering the macrophage activity to do its job of devouring invaders in the body. When this macrophage activity is down, the immune system simply cannot function. Many of these doctors were finding that autism, cancer and other disorders common in our modern society were either cured or improved by giving GcMAF to these patients.

This, of course, was not allowed in the U.S., and one factory making it in Europe was shut down as news of the deaths was emerging. The owner was told his lab was not sterile, and they closed him down. His rebuttal was that it takes at least two weeks to determine sterility in tests, yet they came to this conclusion in five days. No matter, there is no other lab in the world now that is making GcMAF commercially. This man (name withheld) will be on lostartsradio.com in the next couple weeks—stay tuned.

Perhaps the most lethal part of the information came as these natural doctors were finding out that there is an enzyme called nagalase, which blocks the binding of vitamin D to the macrophage activity, making it impossible to



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function properly. After much research with children who contracted autism soon after getting vaccinations, they found that nagalase was put into the vaccinations. It seems it is not enough to give children (and adults) dangerous heavy-metal preservatives like mercury-laden thimerosal, and other unnecessary and unhealthy proteins—but also to put in the immune-suppressing nagalase for the double-edged sword. This information would certainly not be good public relations for the vaccine industry already under siege from a public that is beginning to wake up. In all valid tests done on vaccinations, although vaccines do elicit an immune response, there is no actual proof of this response being a cure or prevention of any kind. It is also very important here to understand the fact that one out of every seven dollars of our economy comes from our “illness maintenance system,” and you can see the vital interest in this industry keeping the nagalase flowing and this information from coming out.

The shadowy powers that be, who bring us fluoride in the water, chemtrails in the sky, the plethora of toxic chemicals in what they call “food,” and now nagalase, have been working an effective fear campaign—which has kept the masses cowering. But this is backfiring on them as now they have awakened the sleeping giant of a righteously indignant public—and the outcry, the websites and radio shows are sending this message around the world. This battle for our freedom, health and happiness cannot be won by violence but by bringing a higher consciousness to all our brothers and sisters, and by getting back to helping our fellow man and our beloved planet—we can certainly change this

and already are in big ways.

It is noteworthy that one very simple way to increase the GcMAF in our bodies is to eat fermented, live foods like kefir, cultured vegetables and raw milk—as the Weston A. Price Foundation has recommended for years. Maybe this is the reason for the attack on raw milk as these very simple, natural products, if spread en masse, would bring down these criminal corporate enterprises. There is a movement gaining momentum around the world which realizes that we do not need the medical system—except for accidents like being hit by a car—or the factory food system because we can grow and trade much of our own. By producing food naturally and organically, we would never need the chemical and pharmaceutical industries either. If we do not like GMOs, vaccinations, chemical-laden foods and other poisons making life on our beautiful planet a living hell—we can all quietly and peacefully starve the beast by taking our lives back and speaking out.

Great websites to find out about this new movement: loststartsradio.com and globalskywatch.com

Name withheld

BROTH FOR THE KNEES

I have been a runner for twenty-five years, and about a year ago my knee really started bothering me to the point where I could no longer run. It had been hurting progressively worse for about nine months when I finally went to see a sports medicine doctor, who diagnosed runner's knee and prescribed physical therapy and a cortisone injection—which did not help. About that time we took a trip to Arizona and I way overdid

it, doing a lot of hiking. When we got back home I was barely able to hobble around. I could walk maybe half a mile; going down stairs was excruciating. The worst part was the pain that kept me from sleeping at night.

About that time I roasted a free-range chicken I had gotten from my “egg man.” Being a good Weston Price follower, I already knew that bone broth was very good for you, so I made chicken soup from the carcass. It made a big batch and I consumed it about five days in a row. About two days later I realized that my knee was not hurting—for the first time in nine months. The only thing I had done differently was to eat the chicken soup. I then consumed broth every day for about a month; so afraid that the knee pain was going to come back! Six months later I am back to running regularly, with no knee pain, still eating broth at least a couple of times a week. I think most of my running friends think I am nuts when I tell them how I cured myself, but I do have a few of them also making the broth! I cringe to think of all the money being wasted on doctor's visits, injections and therapy for things that can be corrected by just eating well.

Sue Miller

Grand Rapids, Michigan

ALUMINUM REQUIREMENT?

In the Summer 2015 *Wise Traditions* a minor mistake was made. Now anyone can make the occasional blunder—certainly to include me, but when these things are in print from what is considered to be a reputable source, they are likely to be repeated. Then there will be people who really believe that we need no aluminum in our diet; just as many really believe that ostriches bury



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their heads in the sand. I refer to the statement on page twenty about halfway down the right column.

According to Dr. Joel Wallach, aluminum deprivation experiments have made some people sick and may have even caused one death. Aluminum is very widespread throughout the soils of the world. Perhaps the best way to express this is: “aluminum is needed in very small amounts, but modern Americans generally receive too much of it from food packaging and other sources.” One role of aluminum is to activate the enzyme succinic dehydrogenase. Thank you. Please keep up the good work.

Gary Witte
Mt. Horeb, Wisconsin

See Dr. Michener's article on page 39 regarding the harmful effects of aluminum on the blood.

LIVE OR INACTIVATED?

I am very much enjoying your Summer 2015 *Wise Traditions*. However, I believe that a statement on page thirteen is incorrect. The statement is, “It will be interesting to see whether the new vaccine will be a more dangerous live virus version.”

According to at an item at webmd.com/children/vaccines/dtap-and-tdap-vaccines about the difference between DTaP and Tdap vaccines, the diphtheria/pertussis/tetanus vaccine contains “inactivated forms of the toxin produced by the bacteria that cause the three diseases.” I searched some of the package inserts for vaccines that contain pertussis vaccine and I'm certain that they do not make the product by putting viruses into it, unless the viruses are accidentally contaminating the vaccines. I

feel it is incorrect for WAPF to say that vaccine makers might make live virus pertussis vaccines. Perhaps the WAPF author meant to say “whole cell version” rather than “live virus version.”

Nevertheless, I am so thankful to all of you at WAPF for publishing your information on vaccines, as well as all of the other subjects you cover. I've been trying to help educate people about the dangers of vaccination ever since I first started studying them in 1998, and I'm delighted that your organization is educating people so that they will make informed choices.

Susan Pearce, chapter leader
Co-founder of Wyoming Vaccine
Information Network
Buffalo, Wyoming

Comment by Leslie Manookian: Thank you for pointing out this error. Pertussis is a bacterium, not a virus, but more to the point, the text should have read “it will be interesting to see whether the new vaccine will be a more dangerous whole cell version.” As you know, the original vaccine was a whole cell vaccine, and it caused so much death and damage it was finally pulled off the market. The version on the market now is a partial cell, attenuated version and given its failings, a new vaccine is being developed—the point we were making was that it would be interesting to see whether this new vaccine would be whole cell. We have made the correction on the WAPF website.

VACCINES AND CELIAC DISEASE

In the article “Adjuvants in Vaccines” (Summer 2015), the author states, “What happens when we inject amino acids. . . into the body instead of first

digesting the proteins to make amino acids naturally? We get autoimmune disorders like Addison's disease, celiac disease. . . (and several others are listed).” The author gives no reference for this statement and does not back it up with any data.

I have celiac disease and I follow the research, and I have not heard this as being conclusive. As a matter of fact the converse may be true—vaccinations were not found to cause an increase in celiac disease that occurred in Sweden and reported in the journal *Pediatrics*. Please tell your authors to be cautious about blanket, unsupported statements of cause and effect. (Show the data!)

Jackie Hunt, chapter leader
Brazoria County, Texas

Response from Natasha Campbell-McBride: In vaccines the industry uses animal and human proteins that have been subjected to various chemical reactions and processes. The resulting mixture will have some amino acids, some peptides and some proteins in various stages of being broken down. This mixture can trigger autoimmunity in the body.

We should not focus on amino acids alone. It is extremely difficult to obtain a “clean” amino acid mixture. Any manufacturer of amino acids will tell you that. An amino acid formula usually comes as a mixture of peptides and amino acids. But regardless of that, what we can do in a laboratory is very different from what happens in the normal digestion of protein in a healthy gut.

A healthy digestive process is extremely complex. Amino acids released during healthy digestion may be very different in their three-dimensional



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structure from amino acids generated in a laboratory; they may be attached to some carrier molecules and absorbed in certain complexes. A good proportion of protein is absorbed in the form of peptides—not all protein gets broken down into amino acids.

We have to take into account the role of enterocytes—the cells that line the gut wall. Absorption of nutrients is an active process accomplished by enterocytes. After digestion the proteins in the gut (in the form of amino acids and peptides) are taken into these cells, analyzed inside them and then released into the blood stream. Every molecule goes through special check points inside these cells. We cannot assume that artificially generated amino acids in vaccines injected directly into the blood are the same “stuff” that normally comes through protein digestion in the gut. The

two processes are worlds apart.

I meet many people who worship science. They believe that “evidence-based medicine” exists. They believe every study they read, particularly if it is published in a well-known mainstream journal. They believe that if a statement has references behind it, then this statement is true. They are not aware of the many pitfalls modern science is plagued with. They don’t know that a large percent of scientific studies simply cannot be trusted.

In a person with celiac disease the gut wall degenerates, enterocytes are sick and unable to fulfill their jobs. In this situation most foods are absorbed through “holes” in the gut wall between enterocytes instead of being taken inside them first. Foods don’t get the chance to be digested properly before they absorb. Once in the blood or lymph these undi-

gested foods trigger immune reactions: food allergy and intolerance, autoimmunity, inflammation, etc. In order to deal with this situation the person has to work on healing and sealing their gut wall, rebuilding new layers of healthy enterocytes. This would be far more productive for a person with celiac disease than focusing on scientific studies.

A TEENAGER’S TESTIMONY

We saw that you were seeking testimonies and want to share my son’s story with you. We are a military family (my husband has been an Active Duty Air Force Officer for twenty-three years now). That means that we are pretty much rule-followers. My son was born after a very difficult pregnancy and given the normal course of vaccinations, etc. I did not know about traditional diets or anything even remotely similar. I ate

WAPF on the WEB

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ALEXA WEBSITE RATINGS: westonaprice.org is rated number one among alternative nutrition websites at alexa.com (see alexa.com/topsites/category/Top/Health/Nutrition). Please visit the Alexa site and post a comment about our website. You can help raise our rating by visiting our website frequently and linking to it from your own website, Facebook page or blog.

INSTAGRAM: Users of Instagram, please tag your posts with #WAPF and #westonaprice.

Letters

a SAD diet before the pregnancy and during.

Reid was a fairly healthy boy although he had low birth weight and intense colic the first three months. I put him on soy formula (as recommended by the hospital and doctor) because of his tummy upsets and projectile vomiting. It didn't really help but it was the only answer I was getting. When Reid was eighteen months of age, we went in for routine vaccinations at our local military hospital. Reid had a slew of vaccinations that day including the MMR. He had a horrific reaction almost immediately. Blisters formed on his hands and feet and a fever spiked up to one hundred five degrees almost instantly. The poor baby turned bright red and looked like he was on fire. He was fussy and lethargic and just not himself. I walked right back into the vaccination office very worried and

concerned. A bored medical tech told me to go to the emergency room.

Needless to say, I did not go to the emergency room. The people that did this to Reid were not going to get another chance to hurt him and Reid has not had a vaccination since that time (nor been back to a military doctor). The vaccination has had some interesting side effects through the years. Reid now suffers from complex food allergies including soy, processed dairy, and wheat. He can't eat processed foods or any kind of food dyes. In addition, the enamel on his teeth was destroyed by the high fever.

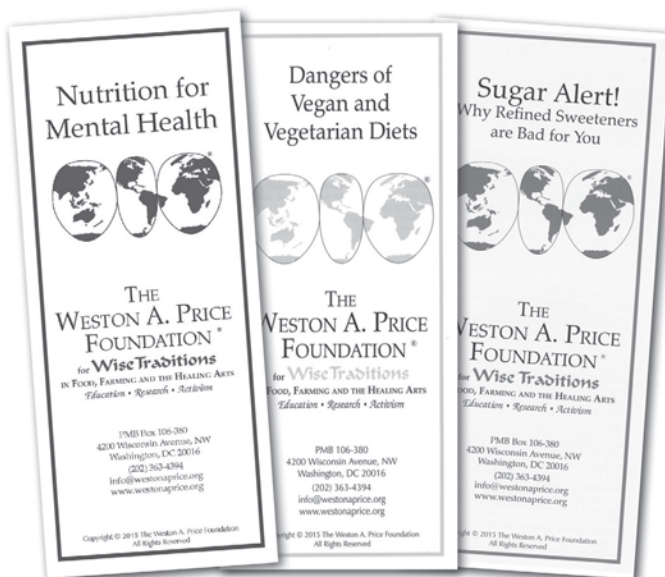
I learned about WAPF and this way of eating due to my own health challenges. Our family started eating a WAPF diet about six years ago. Reid has had a diet of raw milk, pastured eggs, fermented cod liver oil, organic fruits and veggies and farm-raised pastured

beef. (I get a lot of flack from my family since we own a beef cattle ranch in Colorado and farm GMO corn.)

Today, Reid is so fun to be around! His face has literally been transformed over the past few years with his jaw widening to make room for lots of teeth that were suffering from crowding. (His father has a very crowded and narrow jaw from his lack of nutrition as a kid, and it looked like Reid would inherit this trait.) It seemed like braces were in Reid's future before eating this way, but now I don't think that will be necessary. In spite of a lack of enamel on his teeth, since we adopted this way of eating, Reid has not had one cavity—pretty incredible! Not only are Reid's teeth and jaw healthy but he very rarely gets sick.

I hope this story helps anyone who is just “doing what they're told” instead of really investigating what is best for

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Letters



their children. I do feel truly blessed that Reid's reaction to the vaccine wasn't more harmful even and I am so grateful to have found WAPF and the simple, time-tested ways of nourishing our families.

Miranda Sherman, chapter leader
Omaha, Nebraska

REACHING PEOPLE ABOUT WAPF

Here is a suggestion that may help reach people that have never heard of the WAPF. Encourage your members to write to "Letters to the Editor" of their local papers whenever they spy

an insipid, misleading or totally wrong "news" article published there. I was infuriated at a sorry example of propaganda published in the *Pittsburgh Post Gazette* a few months ago, and got a letter published refuting their misinformed article. It had something to do with "studies" on African Americans which claimed eating all meat is bad for them. I refuted them, pointed to the Maasai people in Africa and how healthy they are, noted that they weren't eating McDonalds over there either, and made sure to mention the Weston A. Price Foundation in my letter. Free advertising if you

can get it published. I also wrote a letter to the *Pittsburgh Tribune Review* about an article written about the "safety" of GMOs and mentioned the WAPF, but that letter was never published.

Also, a few more tidbits that I have observed, namely about coconut oil and butter. Regarding coconut oil, I have noticed that when I take a tablespoon or more every day, the flat growths that I have had for years on my hand disappear. I also have had plantar warts on the bottom of my foot since I was in my twenties and they started to go away when I was taking coconut oil every day.

NEW AND NOTEWORTHY! WISE TRADITIONS PODCAST!

In January 2016, we will launch our very own Wise Traditions podcast! Hosted by Washington, DC, chapter leader Hilda Gore, the objective is to make the WAPF principles and lifestyle easy to access and understand for you and for those unacquainted with WAPF. Our hope is that all listeners will be inspired by the information, grow in their wellness journey, and share this valuable content with others.

Every episode will feature practical tips for living a healthier, more vibrant life; accurate, relevant information; down-to-earth discussions; and insights on wellness.

You will hear interviews with top health and wellness experts ranging from holistic doctors such as Dr. Tom Cowan and Dr. Natasha Campbell-McBride, author and founder of the GAPS (Gut and Psychology Syndrome) diet. You will also hear from farmers, physical therapists, dentists, scientists, and other professionals. There will be episodes related to specific health concerns, spotlights on individuals with inspiring health stories, and a series on how to incorporate WAPF principles into your diet.

This 30-minute podcast is easy to listen to wherever you are—driving, gardening, or walking the dog. It's also simple to share with friends and family, with just a click or two. Here are the how-to's:

1. Listen. Go to our website and click on the word "podcast" on the navigation menu. Or simply go to iTunes and plug in the word "Wise Traditions podcast." Download any episode you want to listen to or click on "subscribe" to get the podcast episodes immediately sent to your device (through an app).
2. Share. This information is too good to keep to yourself! Make sure that you send the podcast to friends or family! You can even share episodes on Facebook and Twitter. On iTunes, click on "get" on the podcast of your choice and options for sharing on social media pop up immediately.
3. Review. On the podcast's home page on iTunes, there is a prominent section for "Ratings and Reviews." Please give us many stars and comment on the podcast. If we garner enough support, this podcast will be labeled as "New and Noteworthy" on iTunes, thereby attracting more attention to our life-giving dietary principles.

Our podcast host and producer Hilda Labrada Gore, a mother of four, has been involved with WAPF for over ten years and is the chapter leader for Washington, DC. She went to Kenya last summer on behalf of WAPF. (See article on page 62.) She is the director of communications for Body & Soul, a worldwide fitness organization. She also plays the guitar and is the contemporary music leader at National Presbyterian Church.

Letters

The problem is, they come back eventually if I stop using it.

I have discovered something about butter, too. We can't get hold of raw butter, so we were buying grass-fed pasteurized butter from the store. I figured "more is better," and started to eat a lot of it every day, the equivalent of one half stick per day at least. After a few weeks of doing this, I started to notice arthritis symptoms popping up again (I had rheumatoid arthritis years ago and cured it by following the WAPF dietary guidelines) and it took me a while to realize it was the butter! The pasteurization process is very damaging to the butter and the body. If anyone is prone to arthritis, they should avoid pasteurized dairy products. Raw butter, if we could afford to buy it (I have made it occasionally with the raw milk we buy, but not in quantity) does not cause this.

During Thanksgiving, one of my aunts commented on how well behaved our children are. I had talked to my relatives *ad nauseam* about how they were poisoning themselves by eating processed foods but had finally given up due to their disbelief and comments about my loony ideas. She knows that we don't give our kids the SAD foods, and it is really apparent in their behaviors. They aren't angels ALL the time of course, but they aren't like most of the kids out there who are forced to eat the dangerous foods from supermarkets.

Unfortunately, due to economic difficulties, we have to buy regular meat at the store. Two of our kids are getting eczema again which I believe is from the GMO grains and other toxic things the animals are given before slaughter. Cooking doesn't destroy these toxic

substances. To make things worse, the county around here is spraying Roundup along the roads to kill the vegetation. We had been driving along the roads a day or so after they sprayed, and my kids started to complain about the air outside and that they weren't feeling good. I immediately rolled up the windows and turned on the recirculation to block out the air. After about ten minutes they said they were feeling better, so just another



thing to watch out for if where you live they spray Roundup or any herbicides along the roads.

Jenny Murdock
Littleton, West Virginia

Pasteurization destroys the Wulzen anti-stiffness factor in butter and cream, which would explain why eating a lot of pasteurized butter could lead to rheumatoid arthritis in susceptible individuals.

JUICY GRASS-FED STEAKS

Grass-fed meat does not have to be lean—here is a photo of the juicy, fat steaks we produce at Scott River Ranch.

Gareth Plank
Etna, California

SOY-INFESTED DIET

Thank you so much to the WAPF community for your generous support and for sending *Wise Traditions* while I am detained at the Philadelphia Federal Detention Center.

I recently learned of the passing of our friend Jerry Brunetti. I wish I could have been available again for him prior to and during his health decline. We will all miss him and the loss of his contributions to the way farming is meant to be.

I am also sorry to learn of the initial defeat of the soy lawsuit but wish you the best in your appeal. There is much I could add regarding the soy-infested diet at the federal prison level—something I have opposed during my twenty-five years of practicing medicine in the prison system.

I am teaching a class in nutrition while incarcerated here, and there is certainly a lot of interest.

Erik von Kiel
Philadelphia, Pennsylvania

"EMPTY" SOLID FATS

To no one's surprise, the recently released Scientific Report of the 2015 Dietary Guidelines Advisory Committee criticizes solid fats. This is just a continuation of long-standing federal policy.

But the report's singling out of butterfat as an example of a solid fat with empty calories is absolutely astonishing. The authors are obviously unaware that federal regulations require that all milk, except whole milk, be enriched with vitamin A. The requirement applies to nonfat, lowfat and fat-free milk. The enrichment replaces vitamin A in but-

Letters

terfat that is removed when butterfat is removed. The report places butterfat in the same category as sugars, refined starches and alcohol!

This report will serve as guidance for school lunches and any policy on what is to be included, and not included, in a “healthy diet.”

Richard Perlmutter
Elizabeth, New Jersey

NOT MAKING THIS UP

We were at Disney World park last week and getting some oranges from a concession stand. Next to us a woman was remarking to her son that she might like this sports drink, but maybe it had too much sugar. So my eleven-year-old said to her, “Yeah, it has lots of sugar and other bad chemicals.” So here's the crazy part that made my jaw drop. She

put back the sports drink and bought a Coke. I am not making this up!

Sheena Golish
Jupiter, Florida

ADULT AND CHILDHOOD VACCINATION LAWS UPDATE by Sally Fallon Morell

We are disappointed to announce that SB 277, a law to remove all non-medical exemptions to vaccinations was signed by California Governor Brown. This happened despite tens of thousands of people opposing the legislation and thousands making the trip to Sacramento to testify, rally and protest. As disappointing as that is, this process is not over yet and a referendum to repeal the law has already been launched and lawsuits are also likely. We will be in touch once we have more information about future means of removing this horrible violation of our rights and freedoms. Thank you to everyone for all their hard work in standing up for freedom and truth. This is not over yet!

Vermont also lost its personal belief exemption to vaccination this legislative season though a religious exemption is still in place. In both California and Vermont, it was sad that dirty politics and corporate influence ruled.

Thankfully, in many other states, Americans fighting to preserve their parental rights and their health freedom rights won the day. In Oregon, Washington, Maine, Minnesota, Maryland, North Carolina, New Mexico, and elsewhere, laws to remove exemptions to vaccinations were soundly defeated or pulled before they ever got going due to widespread opposition.

It is important for all our members to understand that this attack on personal rights is not just directed at children but at all Americans. This past spring, the U.S. Department of Health and Human Services introduced the National Adult Immunization Plan, a plan that would track the vaccination status of all American adults and recommend that all adults receive the 184 vaccines currently recommended for the average adult. The pharmaceutical industry has over 270 vaccines in development, which they would be delighted to have added to the CDC schedule, especially as they bear zero financial and legal liability for their vaccines. Indeed, another law passed in California recently that will require all employees of day care, preschool and childcare facilities to be vaccinated.

Make no mistake that vaccines cause serious casualties in thousands of people every year. In the fifteen months from January of 2014 to mid-April 2015, there were nearly 42,000 reports of adverse reactions to the Vaccine Adverse Events Reporting System including nearly 10,000 ER visits and 179 deaths. Vaccine casualties mean a life of disability with damage to the brain, nervous system, immune system, and gut.

While we are told that vaccines saved millions of lives in this country, the truth is that 90 percent of the decline in mortality from infectious diseases occurred before the widespread use of either vaccines or antibiotics. What caused this dramatic change? Public health programs such as clean drinking water, sanitation systems, hand washing, and fresher food. As Dr. Weston Price reported, the poor areas of Cleveland suffered ten times the rate of tuberculosis compared to affluent areas. It was not that they were not exposed to disease, it was that affluent folks benefited from better living conditions and had superior nutrition to strengthen their immune systems so they could fight off whatever bugs they encountered.

Vaccinations cause irreparable damage in tens of thousands of people every year and injecting a toxic cocktail of chemicals and other agents can never be expected to confer health. We hope you will all join us in standing up and fighting for your freedoms as this effort by the pharmaceutical lobby and federal health agencies to remove our rights has only just begun. We will be keeping our members informed of developments in the various states.

Caustic Commentary

Sally Fallon Morell takes on the Diet Dictocrats

SOMETHING FISHY ABOUT FISH OIL

Fish oil supplements are a billion-dollar industry—at least one in ten Americans takes fish oil regularly—built on promises of good health with omega-3 supplementation. The National Institutes of Health claim that fish oil supplements are “likely effective for heart disease,” because they contain “beneficial” omega-3 fatty acids; yet on another page of the website you can read “Omega-3s in supplement form have not been shown to protect against heart disease.” The latter statement is more likely correct. From 2005 to 2012, medical journals published at least two dozen studies on fish oil. All but two of these studies showed that fish oil provided no protection against heart disease compared to a placebo (*NY Times*, March 30, 2015). In fact, fish oil can be hazardous when combined with aspirin or other blood thinners. The truth is that fish oil is a waste product of the fish meal industry. In these pages we have described the two main methods for obtaining the oil. One involves processing the oil at 95°C while the other produces the oil by mixing it with “water and a monosodium glutamate (MSG) by-product with stirring, fermenting the mixture in the presence of urea, processing the mixture with steam, and centrifuging the mixture to separate water and phospholipids from the fish oil. Further steps are neutralizing the separated fish oil with NaOH (caustic lye), washing and drying the washed fish oil in a vacuum, mixing the dehydrated fish oil with powders of earthworm excrement, subjecting the mixture to reaction at least 30°C or higher for 0.5-1 hour, bleaching the fish oil absorbed into the earthworm excrement powders by use of activated clay, filtering the bleached fish oil through a filter, deodorizing the bleached and filtered fish oil under a steam atmosphere in a high-vacuum, deodorizing apparatus, cooling and filtering the fish oil and packaging it into a closed vessel” (westonaprice.org/health-topics/update-on-cod-liver-oil-manufacture). WAPF recommends small amounts of gently extracted fish *liver* oil, enough to get adequate vitamins A and D, without overdosing on omega-3 fatty acids.

MORE EFFICIENT

Professor Mike Brown of South Dakota State University is working on a fish food to replace fish for carnivorous fish. Much of the farm-raised tilapia, Atlantic salmon and catfish get pellets containing anchovy, menhaden and herring (the by-product of which is fish oil, see above). Brown hopes to

develop a fish feed that would “convert some farm-raised fish into vegetarians.” That feed would come from soy, of course, and help soybean farmers “dealing with stockpiles that have driven down prices.” The researchers have been working with various species, including coho salmon, rainbow trout, barramundi, white leg shrimp, yellow perch and hybrid striped bass “to see how much of the feed can be added to the species’ diets without affecting physiology or reducing growth.” Why would anyone want to feed feminizing soy to fish when environmentalists warn that “feeding fish species an uncommon food source could produce excess waste that muddies up inland tanks or offshore waters where fish are raised,” and produce embarrassing things like hermaphrodite fish? Money, of course. Fish-based fish feed currently costs up to two thousand dollars per ton, while soybean meal runs just over four hundred dollars per ton. Soy feed is “pretty darn efficient,” says Brown (*The Delmarva Farmer*, December 1, 2015).

A HARD THEORY

It’s really amazing how hard it is for conventional scientists to accept the premise that the intake of vitamins and minerals has anything to do with “dental deformities”—crowded teeth and malocclusions. A recent example is “Incongruity between Affinity Patterns Based on Mandibular and Lower Dental Dimensions following the Transition to Agriculture in the Near East, Anatolia and Europe” (*PLOS ONE*, 2015;10(2):e0117301). (Translation: Crooked Teeth Among Agriculturists.) The researchers noted almost “perfect harmony” between the lower jaws and teeth of the earliest humans, which “begins to fade” as humans transitioned to farming. The reason, say the investigators, is that the hunter-gatherer ate “hard” foods like wild uncooked vegetables and meat, while the staple diet of the sedentary farm is based on “soft” cooked foods like cereals and legumes. No consideration is given to the possibility that the higher levels of minerals and vitamins, especially fat-soluble vitamins, in the animal foods of the hunter-gatherer were the factors conferring excellent bone structure. In any event, the foods of the hunter-gatherer were not necessarily hard. Typically the organ meats, fat, and tenderest flesh were shredded with stone knives and cooked, along with the blood, inside the stomach of the animal. Vegetables often came in the form of thoroughly chewed and half-digested plant matter in the animal intestines. What’s often

Caustic Commentary

lacking in the diets of agriculturists is sufficient vitamins A, D and K, supplied by animal organs and fats. These vitamins are critical to facial formation in utero and during growth.

A HUNT FOR A CURE

The National Institutes of Health is gearing up to find a “cure” for chronic fatigue—“the mysterious, debilitating condition that disables many of the more than one million Americans who have it.” The condition is so widespread that doctors can no longer call it a psychosomatic condition. The agency wants to “recruit some new bright ideas and idea generators” to solve the riddle. In recent years, research had focused on the idea that chronic fatigue was caused by a mouse retrovirus (*Washington Post*, October 29, 2015). Let's hope the “new bright ideas” include the obvious: processed food, poor gut health, amalgam fillings and root canals, and multiple vaccines.

NO SEX REQUIRED

Classical genetics is predicated on the theory that genetic traits can only be passed “downstream” from germline cells (egg and sperm) to somatic (bodily) cells via sexual reproduction. According to this view, genetic change can take hundreds, thousands, and even millions of years to appear. However, a new study has found that genetic information

can be transferred “upstream” from somatic cells to germ cells. The research found that mice grafted with human melanoma tumor cells genetically manipulated to express genes for a fluorescent tracer enzyme were found to release molecules containing the enzyme into the animals' blood and then deliver the genetic information to mature sperm cells where the information remained stored. The discovery revives the Lamarckian concept that an organism can pass on characteristics it has acquired during its lifetime to its offspring and implies that our nutrition, toxic exposures and even our behaviors and experiences can be passed on to our offspring and affect their biological destinies into the distant future (greenmedinfo.com/blog/no-sex-required-body-cells-transfer-genetic-info-directly-sperm-cells-amazing). It also begs the question whether the genetic material inserted into GMO seeds can be passed upstream to human germ cells.

CANE OR BEETS?

In 2008, the country's ten thousand beet farmers switched almost overnight to GMO, Roundup-resistant seed. Since then, market share has declined steadily, from 47 percent of total U.S. sugar usage to less than 41 percent, as manufacturers switch to non-GMO ingredients, like cane sugar. Thanks to consumer pressure, companies like Hershey, Ben and Jerry's,

UPDATED SHOPPING GUIDE APP NOW AVAILABLE

We are very excited to announce an all new and greatly improved mobile app and website with store finder locations for all the products in the Shopping Guide!

The app has been submitted to iTunes as a new app with a slightly different name—“Find Real Food Locations”—instead of submitting it as an update to the old app (which hasn't been modified in two years). The existing subscribers who paid for the old app will be grandfathered into the new mobile app (and website), so they get an all-new mobile app at no extra fee until their subscription expires.



We are offering a thirty-day free trial for new users (website and mobile app). Once users sign up for a subscription, they can access the Shopping Guide via the mobile app or website using their same login.

The icon has been updated along with the new app name to show that this app has maps and locations.

The new price is \$3.99 for six months and \$5.99 for twelve months (one dollar more than the prior app) because the app has more value now that we have GPS store locations. An Android version is coming soon.

The store locations database is a big ongoing project. There are many hundreds of thousands of stores (and farms and Buying Clubs) that carry WAPF-approved foods/beverages. Our database is not complete but pretty good for starters. With your help, we will be updating and making the app current.

Caustic Commentary

and General Mills have pledged to remove GMO ingredients. Rather than explore new conventional seed options, the sugar beet industry has embarked on a marketing campaign, enlisting eighteen women, largely farmers and wives of farmers, to defend sugar beet sugar on Twitter and Facebook, and to persuade the public that GMO seeds are safe (reuters.com/article/2015/10/29/us-sugar-gmo-insight).


THE K WORD IN THE PRESS!

Over the past few years, newspaper articles have described the decline in soft drink consumption, claiming that consumers are turning to water or “flavored teas” out of concern for taking in artificial sweeteners or too much sugar. Never a mention of the K word—K for kombucha—occurs in these articles, even though sales were four hundred million dollars in 2014, with estimated yearly growth of 30 percent. But kombucha entered the mainstream on November 10, 2015 with an article on the front page of the *Wall Street Journal's* Business & Tech section. The article focuses on alcohol levels in kombucha and mentions our own Hannah Krum, president of Kombucha Brewers International, a trade group representing dozens of producers. Krum is lobbying government officials to use advanced alcohol testing techniques that do not give falsely high alcohol levels due to interference with the organic acids in kombucha. The article mentions benefits to digestion from this living food. It's nice to see the K word reach the mainstream.

K₂ FOR CANCER

Research indicates that vitamin K₂—Dr. Price's so-called X-Factor—provides key protection against cardiovascular disease, supports optimal growth and facial development, is vital for reproduction and supports brain myelination and learning capacity. Now we can add cancer protection to the long list of K₂'s benefits. Researchers at the University of Limerick found that vitamin K₂ derivatives significantly inhibited the growth of breast cancer cells of the deadly triple-negative variety (*Nutr Res* 2015 Aug;35(8):736-43). Best sources of vitamin K₂ in the Western diet are aged cheese, the fat and livers of ducks and geese, butter and egg yolks. It's time to recognize these foods as health foods, and not something to be shunned by individuals with cancer and heart disease.

SEISMIC SHIFT

Economists are noticing a “seismic shift” in the way people are eating as they wake up to the dangers of processed foods. Per capita soda sales are down 25 percent since 1998, with orange juice consumption down 45 percent. Sales of packaged cereals are down over 25 percent since 2000 and sales of fast foods like McDonald's are also on a downward spiral. Industry insiders now refer to grocery store center aisles as “the morgue” as consumers have increased their intake of fruits and vegetables and of fresh prepared foods. Food companies are tinkering by removing artificial flavors, lowering sugar content and, in the case of the fast food companies, limiting antibiotic use in their feeder farms. According to analysts Hans Taparria and Pamela Koch, “Instead of throwing good money after bad for its lagging frozen products, Nestlé, which is investing in a new \$50 million frozen research and development facility, should introduce a range of healthy, fresh prepared meals for deli counters across the country These changes would require a complete overhaul of their supply chains, major organizational restructuring and billions of dollars of investment, but these corporations have the resources. It may be their last chance” (*NYTimes*, November 6, 2015). These “supply chains” have already undergone overhaul in the hundreds if not thousands of CSAs, food co-ops and direct farm sales and delivery set-ups, which are bringing nutrient-dense farm products to our communities. The inconvenient truth for the giant food companies is the impossibility of making any kind of profit on truly healthy food. Consumers need to make their own arrangements to obtain the kinds of foods that confer optimum health on their families. 

FOR SCIENTISTS AND LAY READERS

Please note that the mission of the Weston A. Price Foundation is to provide important information about diet and health to both scientists and the lay public. For this reason, some of the articles in *Wise Traditions* are necessarily technical. It is very important for us to describe the science that supports the legitimacy of our dietary principles. In articles aimed at scientists and practitioners, we provide a summary of the main points and also put the most technical information in sidebars. These articles are balanced by others that provide practical advice to our lay readers.

The Fourth Phase of Water: Implications for Energy and Health

Gerald H. Pollack, PhD

Why do sprained ankles swell within seconds? Why do your joints operate without squeaking? Can drinking water supply energy? Is water merely another kind of food? How is water relevant to health? Answering these and related questions requires an understanding of the chemistry of water. Many presume that by now every aspect of water must have been discovered and thoroughly explicated, given its simplicity and pervasiveness throughout nature. In fact, however, precious little has been understood about how water molecules organize themselves—until recently.

Students learn that water has three phases: solid, liquid, and vapor. But there is something more: in our laboratory at the University of Washington we have uncovered a fourth phase. This phase occurs next to water-loving (hydrophilic) surfaces. It is surprisingly extensive, projecting out from surfaces by up to millions of molecular layers. And it exists almost everywhere throughout nature, including in your body. In fact, it is this phase of water that fills your cells.

The energy for building water structure comes from the sun.

I describe this newly identified phase of water in my book, *The Fourth Phase of Water: Beyond Solid, Liquid and Vapor*,¹ published in 2013. The book documents the basic findings and presents many applications beyond the ones mentioned above. It also deals with water's well-recognized anomalies, turning those anomalies into easily explained features.

The existence of a fourth phase of water may seem unexpected. However, it should not be entirely so: a century ago, the physical chemist Sir William Hardy argued for the existence of a fourth phase; and many authors over the years have found evidence for some kind of "ordered" or "structured" phase of water. Fresh experimental evidence not only confirms the existence of such an ordered, liquid-crystalline phase, but also details its properties. It is more viscous, dense and alkaline than H_2O and has relatively more oxygen since its formula is H_3O_2 . As a result, it has a negative charge, and like a battery, can hold energy as well as deliver that energy when needed. These properties explain everyday observations and answer questions ranging from why gelatin desserts hold their water to why teakettles whistle.

The presence of the fourth phase of water carries many implications. Here I will outline some basic features of this phase and then deal

with several of those implications including energetic aspects. We obtain energy from food; however, we can also get energy from water. I will touch briefly on atmospheric science implications because everyone is interested in the weather, and then focus on some biological and health applications.

DOES WATER TRANSDUCE ENERGY?

The energy for building water structure comes from the sun. Radiant energy converts ordinary bulk water into ordered water, building this ordered zone. We found that all wavelengths ranging from ultraviolet, through visible, to infrared can build this ordered water. Near-infrared energy is the most capable. Water absorbs infrared energy freely from the environment and uses that energy to convert bulk water into liquid crystalline water (fourth phase water)—which we also call "exclusion zone" or "EZ" water because it profoundly excludes solutes. Hence, buildup of EZ water occurs naturally and spontaneously from environmental energy. Additional energy input creates additional EZ buildup.

Of particular significance is the fourth phase's charge, which is commonly negative (Figure 1). Absorbed radiant energy splits water molecules; the negative moiety constitutes the building block of the EZ, while the positive

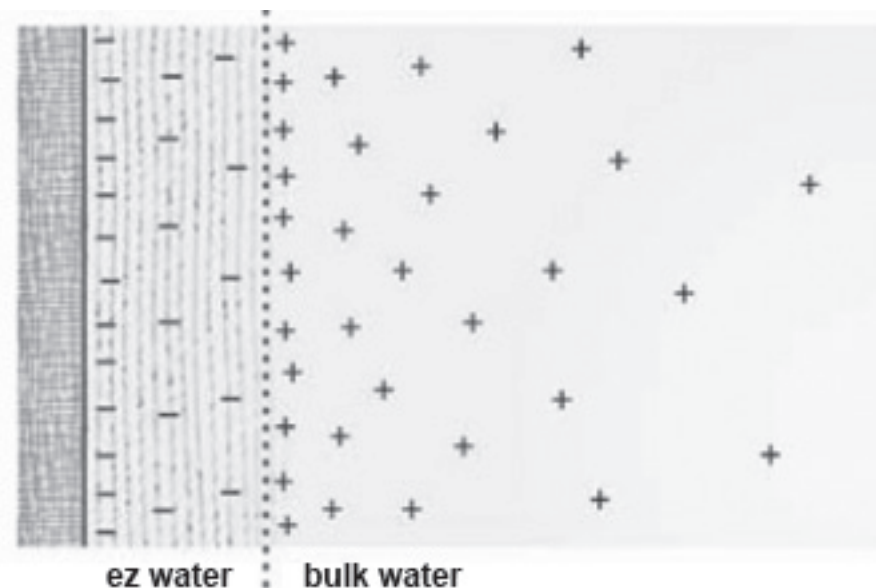


FIGURE 1. Diagrammatic representation of EZ water, negatively charged, and the positively charged bulk water beyond. Hydrophilic surface at left.

moiety binds with water molecules to form free hydronium ions (H_3O^+), which diffuse throughout the water. Adding additional light (radiant energy) stimulates more charge separation.

This process resembles the first step of photosynthesis. In that step, energy from the sun splits water molecules. Hydrophilic chromophores (the color-containing part of a molecule) catalyze that splitting. The process considered here is similar but more generic: any hydrophilic surface may catalyze the splitting of water. Some surfaces work more effectively than others.

The separated charges resemble a battery. That battery can deliver energy in a manner similar to the way the separated charges in plants deliver energy. Plants, of course, comprise mostly water, and it is therefore no surprise that similar energy conversion takes place in water itself.

The stored electrical energy in water can drive various kinds of work, including flow. An example is the axial flow through tubes. We found that immersing tubes made of hydrophilic materials into water produces flow through those tubes similar to blood flow through blood vessels (Figure 2). The driving energy comes from the radiant energy absorbed and stored in the water. Nothing more. Flow may persist undiminished for many hours, even days. Additional incident light brings faster flow. This is not a perpetual motion machine: incident radiant energy drives the flow—in much the same way that it drives vascular flow in plants and powers water from the roots to nourish trees taller than the length of a football field.

APPLICATIONS IN NATURAL SCIENCE

The water-based energy conversion frame-

work is rich with implications for many systems involving water. These systems may range from biology and chemistry all the way to atmospheric science and engineering. The fourth phase appears nearly everywhere: all that's needed is water, radiant energy and a hydrophilic surface. The latter can be as large as a slab of polymer and as small as a dissolved molecule. The liquid crystalline phase inevitably builds, and its presence plays some integral role in the system's behavior. Let me provide a few representative examples.

One example is...you. By volume, two-thirds of your cells' content is water. However, the water molecule is so small that making up that two-thirds volume requires 99 percent of all your molecules. Modern cell biology considers that 99 percent molecular fraction as mere background carriers of the "important" molecules of life such as proteins and nucleic acids. Conventional wisdom asserts that 99 percent of your molecules don't do very much.

However, EZ water envelops every macromolecule in the cell. Those macromolecules are so tightly packed that the EZ water largely fills your cells. In other words, most of your cell water is EZ water. This water plays a central role in everything the cell does, as elaborated in my earlier book, *Cells, Gels and the Engines of Life*.²

What's new is the discovery of the role played by radiant energy: incident radiant energy powers many of those cellular functions. An example is the blood flowing through your capillaries. That blood eventually encounters high resistance since capillaries are often narrower than the red blood cells that must pass through them. In order to make their way through, those

Immersing tubes made of hydrophilic materials into water produces flow through those tubes similar to blood flow through blood vessels.



Figure 2. Practically incessant flow occurs through hydrophilic tubes immersed in water.

red cells need to contort. Resistance is high. You'd anticipate the need for lots of driving pressure yet the pressure gradient across the capillary bed is negligible. The paradox resolves itself if radiant energy helps propel flow through capillaries in the same way that it propels flow through hydrophilic tubes. Radiant energy may constitute an unsuspected source of vascular drive, supplementing cardiac pressure.

Why you feel good after a sauna now seems understandable. If radiant energy drives capillary flow and ample capillary flow is important for optimal functioning, then sitting in the sauna will inevitably be a feel-good experience. The infrared energy associated with heat should help drive that flow. The same occurs when you walk out into sunlight. We might at first presume that the feel-good experience of a sunny day derives purely from the psychological realm, but the evidence above implies that sunlight may build your body's EZs. Fully built EZs around each protein seem necessary for optimal cellular functioning.

A second example of the EZ's central role is the weather. Common understanding of weather derives from two principal variables: temperature and pressure. Those two variables are said to explain virtually everything we experience in terms of weather. However, the atmosphere also contains water—micrometer-scale droplets commonly known as aerosol droplets or aerosol particles. Those droplets make up atmospheric humidity. When the atmosphere is humid, the many droplets scatter considerable light, conferring haze; you can't see clearly through that haze. When the atmosphere contains only few droplets, you may be able to see clearly over long distances.

My book on the fourth phase of water presents evidence for the structure of those droplets. It shows that EZ water envelops each droplet, while hydronium ions occupy the droplets' interiors. Repelling one another, those hydronium ions create pressure, which pushes against the robust shell of EZ water. That pressure explains why droplets tend toward roundness.

How do those aerosol droplets condense to form clouds? The droplets' EZ shells bear negative charge. Negatively charged droplets should

repel one another, precluding any condensation into clouds. Those like-charged aerosol droplets should remain widely dispersed throughout the atmosphere. However, droplets do condense into clouds, and the question is, how does that happen?

The reason they condense is because of the unlike charges that lie in between the droplets. Richard Feynman, the legendary Nobel Prize physicist of the late twentieth century, understood the principle and opined that: "Like-likes-like because of an intermediate of unlikes." The like-charged droplets "like" one another, so they come together; the unlike charges lying in between those droplets constitute the attractors (Figure 3).

The like-likes-like principle has been widely appreciated, but also widely ignored; after all, how could like charges conceivably attract? A reason why this powerfully simple concept has been ignored is that the source of the unlike charges has been difficult to identify. We now know that the unlike charges can come from the splitting of water—the negative components building EZ shells—while the corresponding positive components provide the unlike attractors. With enough of those attractors, the negatively charged aerosol droplets may condense into clouds.

These two phenomena, radiant energy-induced biological function and like-likes-like cloud formation, provide examples of how water's energy can account for phenomena not otherwise explained. The fourth phase is the key building block that allows for construction of an edifice of understanding.

PRACTICAL APPLICATIONS

Beyond scientific applications, the discovery of water's fourth phase has practical applications as well. These include flow production (already mentioned), electrical energy harvesting and even filtration. I will briefly mention the latter two applications.

Filtration occurs naturally because the liquid crystalline phase massively excludes solutes and particles in much the same way ice does. Accordingly, fourth phase water is essentially solute free. Collecting it provides solute-free and bacteria-free water. A patented working proto-

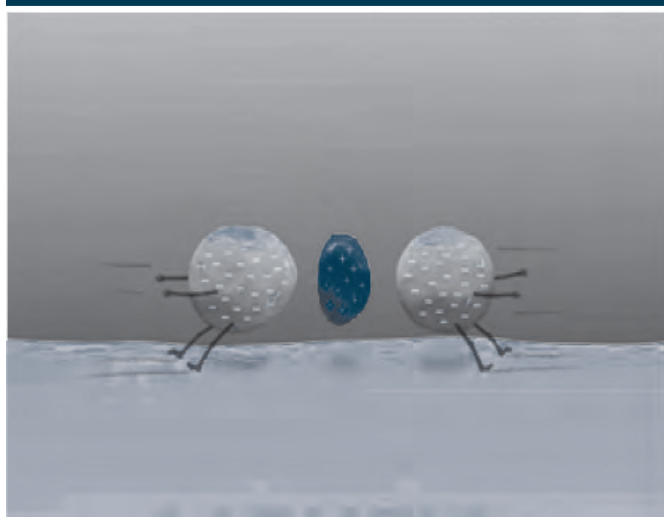


Figure 3. Like-charged entities attract because of an intermediate of opposite charge.

type has confirmed this expectation. Purification by this method requires no physical filter: the fourth phase itself does the separation, and the energy comes from the sun.

Energy harvesting seems straightforward: light drives the separation of charge, and those separated charges constitute a battery. Harvesting electrical energy should be realizable with proper electrodes. This (patented) technology development is underway in our laboratory, and has the potential to replace standard photovoltaic systems with simpler ones based on water. More details on these practical applications can be found on the Pollack laboratory homepage: faculty.washington.edu/ghp/.

APPLICATIONS IN MEDICAL SCIENCE

Practical applications also exist within our bodies, and here I present two of them: why our joints don't squeak and why dislocated or sprained joints swell within *seconds*.

Joints are sites at which bones press upon one another (Figure 4). The bones may also rotate, as during deep-knee bends and push-ups. You'd think that rotation under pressure might elicit squeaky frictional resistance, but joint friction remains remarkably modest. Why so?

The ends of bones are lined with cartilage. Those cartilaginous materials do the actual

pressing. Hence, the issue of joint friction reduces to the issue of the cartilaginous surfaces and the synovial fluid lying in between. How does this system behave under pressure?

Cartilage is made of classic gel materials: highly charged polymers and water. Therefore, cartilage is a gel. Gel surfaces bear EZs, so cartilage surfaces should likewise bear EZs. The splitting of water associated with EZ buildup creates many hydronium ions in the synovial fluid in between. Additional hydronium ions come from the molecules within that fluid, creating their own EZs and protons. Thus, many hydronium ions will lie in the area where two cartilaginous surfaces lie across from one another. The repulsive force coming from those hydronium ions should keep the cartilage surfaces apart—some investigators maintain that the cartilage surfaces never touch, even under heavy loads. That separation means that any rough spots, or asperities, will never come into contact with one another as the respective surfaces shear past one another; and that in turn means low friction.

For such a mechanism to actually work, some kind of built-in restraint should be present to keep the repelling hydronium ions in place. Otherwise, those hydronium ions may be forced out of the local region, thereby compromising lubrication. Nature provides that safety net: a structure known as the joint capsule envelops the joint. By constraining the dispersal of hydronium ions, that encapsulation ensures low friction. That's why your joints don't ordinarily squeak.

Regarding swelling, the second issue under consideration here, osmosis evidently plays a role. Since the cell is packed with negatively charged proteins, the cytoplasm should generate an osmotic draw similar to the osmotic draw generated by diapers or gels. Physiologists know that it does.

A peculiar feature of cells, however, is their relatively modest water content. Compared to 20:1 or higher for many common gels, the cell's water-to-solids ratio is only about 2:1. The many negatively charged macromolecules of the cell should generate a strong osmotic draw; yet the water content in the cell remains surprisingly low. That limited water content may come as a consequence of the macromolecular network's stiffness: cellular networks typically comprise

Technology is underway with the potential to replace standard photovoltaic systems with simpler ones based on water.

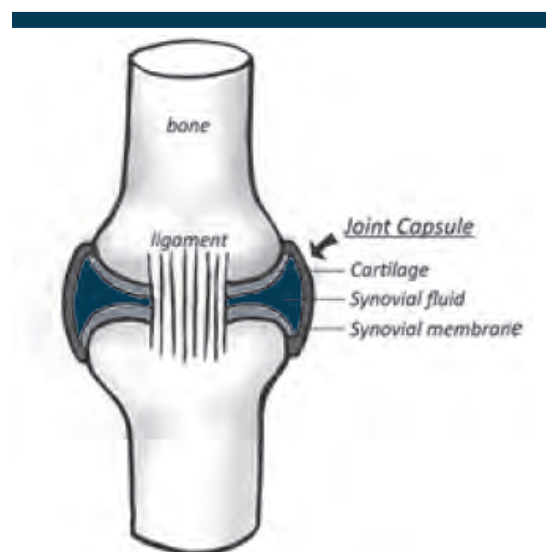


Figure 4. Enveloping the joint, the capsule ensures that the fluid's hydronium ions don't disperse. The concentrated hydronium ions repel, keeping surfaces apart and assuring low friction.

A peculiar
feature of body
cells is their
relatively
modest water
content.

tubular or multi-stranded biopolymers tightly cross-linked to one another. The resultant stiffness prevents the network from expanding to its full osmotic potential.

If those cross-links were to disrupt, however, then the full power of osmotic draw would take effect; the tissue could then build many EZ layers and therefore hydrate massively, bringing huge expansion (Figure 5). That's precisely what happens when body tissues are injured, especially with dislocations. The injury disrupts fibrous macromolecules and cross-links, eliminating the restraining forces that keep osmosis at bay; EZ buildup can then proceed virtually unimpeded.

The reason why swelling can be so impressive is that the cross-link disruption occurs progressively. Breaking one cross-link results in higher stress on neighboring cross-links, so disruption progresses in a zipper-like fashion. When that happens, the osmotic rush of water into the tissue can continue practically without restraint, resulting in the enormous immediate swelling that is often seen. The tissue will return to normal only when cross-links repair and the matrix returns to its normally restraining configuration.

WATER AND HEALING

During childhood illness, grandmothers and doctors will often advise to "drink more water." In his now-classic book, *Your Body's Many Cries for Water: You are not Sick; You are Thirsty*,³ the Iranian physician Fereydoon Batmanghelidj confirms the wisdom of this humble advice. The author documents years of clinical practice showing reversal of diverse pathologies simply by drinking more water. Hydration is critical.

Batmanghelidj's experience meshes with evidence of healing from special waters such as those from the Ganges and Lourdes. Those waters most often come from deep underground springs or from glacial melt. Spring waters experience pressure from above; pressure converts liquid water into EZ water because of EZ water's higher density. EZ water differs from bulk water in that it absorbs light in the UV region of 270 nanometers on spectrometry. The more light in this sector that is absorbed, the higher the concentration of EZ water in the sample. Specimens from the sites mentioned above and certain

spring waters show a peak in this 270-nanometer zone, suggesting that relatively high EZ concentrations could contribute to their therapeutic benefits.

The same for mountain water: it too should have high EZ content. Our studies have shown that ice formation requires an EZ intermediate; i.e., bulk water does not convert directly to ice; it converts to EZ, which then converts to ice. A similar process occurs in reverse: melting ice forms EZ, which subsequently converts to bulk water. Fresh ice melt contains abundant EZ water.

For spring water and fresh ice melt, then, the high EZ content may explain the recognized health benefits. EZ water should rehydrate tissues better than ordinary water because of its higher dipole moment. To appreciate this argument, picture a bean with positive charge localized at one end, negative at the other. The positive end of that dipole orients toward the negatively charged cell, which then strongly draws in that dipole. The larger the dipole, the stronger will be the draw. Since EZs contain masses of separated charges, or large dipoles, EZ water should hydrate cells better than ordinary water. That's why EZ water may particularly promote good health.

NEGATIVE CHARGE AND ANTIOXIDANTS

Humans are considered neutral, but I suggest that we bear net negative charge. Physical



Figure 5. Example of post-injury swelling.

chemists reasonably presume that all systems tend toward neutrality because positive charge attracts negative charge. The human body being one of those “systems,” we assume that the body must be neutral.

Not all systems are neutral, however. The earth bears net negative charge, while the atmosphere bears net positive charge. Water itself can bear charge. Anyone watching MIT professor Walter Lewin’s stunning demonstration of the Kelvin water dropper,⁴ where separated bodies of water eventually discharge onto one another, will immediately see that bodies of water can bear net charge. If any doubt remains, then the experience of getting an electric shock from touching certain kinds of drinking water (which my colleagues and I have personally experienced) should eliminate that doubt.

Charges can remain separated if input energy keeps them separated—something like recharging your cell phone battery and creating separated negative and positive terminals. Since we constantly absorb external energy from the environment, the theoretical possibility exists that we may bear net charge.

Consider the arithmetic. Cells make up some 60 percent of your body’s mass and they are negatively charged. Extracellular tissues such as collagen and elastin are next in line, and those proteins bear negative charge and adsorb negatively charged EZ water. Only some of the smaller compartments are positively charged with protons (low pH), and they commonly expel matter such as urine, feces, sweat, and expired air (containing hydrated CO₂ or carbonic acid). They help rid the body of positive charge.

So, the arithmetic shows not only that our body bears net negative charge, but also that the body makes every effort to maintain that negativity by ridding itself of protons. It is as though maintaining negativity is a “goal” of life. Plants do it easily: they connect directly to the negatively charged earth; animals need to struggle a bit more to maintain their body’s charge in exchange for greater mobility.

How does our body’s negative charge relate to the benefits of antioxidants? Answering this question returns us to basic chemistry. Recall that “reduction” is the *gain* of electrons, while “oxidation” means electron *loss*. Oxidation strips

molecules of their negative charge, working against the body’s attempt to maintain high negativity. To guard against that loss we employ antioxidants. Antioxidants may keep us healthy simply by maintaining proper negativity.

THE FUTURE

Water’s central importance for health is nothing new, but it has been progressively forgotten. With the various sciences laying emphasis on molecular, atomic and even sub-atomic approaches, we have lost sight of what happens when the pieces come together to form the larger entity. The whole may indeed exceed the sum of its parts. Ninety-nine percent of those parts are water molecules. To think that 99 percent of our molecules merely bathe the “more important” molecules of life ignores centuries of evidence to the contrary. Water plays a central role in all features of life.

Until recently, the understanding of water’s properties has been constrained by the common misconception that water has but three phases. We now know it has four. Taking into account this fourth phase, the liquid crystalline phase, allows many of water’s “anomalies” to vanish and instead turn into predictable features.⁵ Water becomes more understandable to us, and so do entities made largely of water, such as oceans, clouds and human beings. ☯

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Sewage in a Glass?

Technologies for Cleaner, Safer Water

Norm LeMoine

You may be thinking, “I have very good water at my home. I go to my kitchen faucet and fill my glass with water that is cool, crystal clear and colorless, with no bad taste or smell. I have nothing to be concerned with. What’s the big deal?”

Others of you may be thinking, “My water smells and tastes like chemicals. The chlorine effects are obvious. I know it also has synthetic fluoride added, and I hear that chloramines may eventually be added into the water as well, but I guess that’s just the way it is.”

And still others of you are likely thinking, “I know my water needs help, as it seems barely fit for human consumption. Drink it or cook with it? I can’t even stand showering in it!”

FRESH WATER IN TROUBLE

No matter what you are thinking, you need to know that all water today is in peril. Water is under tremendous environmental stress from a quality perspective and in many areas like California, severe drought has caused serious supply issues as well. Most of us, whether we choose to acknowledge it or not, are consuming water that is laced with treated sewage (in some cases, untreated sewage!), industrial waste, agricultural chemicals, pharmaceuticals, heavy metals, fluoride, disinfectants and their byproducts, and storm runoff. That's the bad news. The good news is that excellent technologies and solutions do exist today that can empower you to make your home a better place for you and your family and to gain true peace of mind. In this article we will discuss the challenges water faces, why these challenges have occurred, why it matters, and what we can do about it.

FLOW IN FLOW OUT

Have you ever wondered exactly where the water in your home comes from? Most people know very little about the source of their drinking water. Does it come from a public water supply? Often termed "city water," "municipal water" or "treated water," if you pay for your water or if a third party is adding disinfectants or fluoride to your water, then your water comes from a public water supplier. Alternatively, your water may come from a private well, a spring, or some other source. Over 85 percent of us in the United States rely on water from a public water supply. In fact, the majority of us relying on public water are drinking water laced with treated sewage! And those depending on well water or some other source may be worse off!

Have you ever wondered where the wastewater leaving your home goes? Or have you wondered why your drinking water tastes and smells the way it does?

We turn on our kitchen faucets and water flows as if by magic. We assume it will always be there. But will it? We assume it is safe. But is it? To begin answering some of these questions, let's start by taking a look at water from a global and historical perspective.

THE BIG SQUEEZE

We all know that most of the earth is covered with water. Coleridge's eighteenth-century poem, "The Rime of the Ancient Mariner," includes the oft-repeated line, "Water, water, everywhere, nor any drop to drink." He was referring to the fact that most of the earth's water—about 97 percent of it—is undrinkable salt water, unless, of course, one is able to desalinate it.

A major desalination effort is presently underway in Carlsbad, California. This will be a welcome addition to the water supply in Southern California, but the process is very costly and will account for only about 7 percent of the water demands in San Diego County. Given the best-case scenario today at about two dollars fifty cents per gallon for the desalination process, this makes it far too costly (about twenty-five hundred times the cost of fresh water) compared to the mere tenth of a cent per gallon that we pay today. Environmental concerns over desalination efforts are also major obstacles that must be addressed.

To look at fresh water another way, let's use a simple one-gallon jug to represent the earth's total water supply. This one gallon (or 128 ounces) is 97 percent salt water, representing about 124 of the 128 ounces. This leaves about four ounces, or a half cup, as fresh water. However, since much of the fresh water on the planet is inaccessible or at least impractical to access (polar icecaps, frozen tundra, water within topsoil, trees, insects, animals, humans), we are left with less than a single drop being conveniently available as surface water. On this fraction of a drop, the future of fresh water and, one could argue, the future of civilization depends!

Overall, only .007 percent of the water on the planet is fresh and accessible surface water—a very finite amount. This finite nature of water makes sense when we review the natural water cycle process. Recalling our elementary school science class, there are four phases to the water or hydrologic cycle: evaporation (the conversion of water, through the sun's energy, from a liquid into a gas); condensation (the conversion of water, as it cools in the earth's atmosphere, from a gas into a liquid); precipitation (in the form of rain, hail, sleet or snow); and collection. The net effect is that the water we use today has always been

Overall, only .007 percent of the water on the planet is fresh and accessible surface water.

PRIMARY AND SECONDARY STANDARDS OF PUBLIC DRINKING WATER ESTABLISHED BY THE EPA

A National Primary Drinking Water Regulation (NPDWR or primary standard) is a legally enforceable standard that applies to public water systems (PWS). This term should replace “water systems” in this entire section, as it is confusing to refer to water treatment facilities as “systems.” Primary standards protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in water. They take the form of Maximum Contaminant Levels (MCL). MCL were established to protect the public against consumption of drinking water contaminants that present a risk to human health. MCL is the maximum allowable amount of a contaminant in drinking water that is delivered to the consumer. The EPA sets standards for approximately ninety contaminants and indicators in drinking water. The List of Regulated Contaminants actually contains only eighty-seven compounds, although over twenty-one hundred chemical compounds have been found in U.S. drinking water.

A National Secondary Drinking Water Regulation (NSDWR or secondary standard) is a non-enforceable guideline regarding contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. The EPA recommends secondary standards to Public Water Systems but does not require them to comply. However, states may choose to adopt them as enforceable standards. The list of Primary Standards is as follows:

Microorganisms (Seven Regulated Contaminants):

- Total coliform bacteria (including fecal coliform and *E. coli*)
- Turbidity—higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites, and some bacteria
- Viruses (enteric), *Cryptosporidium*, *Giardia lamblia*, *Legionella*, Heterotrophic Plate Count (HPC)

Disinfectants (Three Regulated Contaminants):

Chlorine Chlorine dioxide Chloramines

Disinfection Byproducts (Four Regulated Contaminants):

Total trihalomethanes (THM) Haloacetic acids (HAA5) Bromate Chlorite

Inorganic Chemicals (Sixteen Regulated Contaminants):

- Heavy metals discharged from petroleum refineries, metal refineries, and electronic factories:

Antimony	Arsenic	Barium	Beryllium	Cadmium
Chromium	Cyanide	Mercury	Selenium	Thallium
- Asbestos fibers—decay of asbestos cement in water mains
- Copper—corrosion of household plumbing
- Fluoride—discharge from fertilizer and aluminum factories and as a water additive
- Lead—corrosion of household plumbing
- Nitrates and nitrites—runoff from fertilizer use; leaking from septic tanks; sewage; erosion of natural deposits

Organic Compounds (Fifty-two Regulated Contaminants) including:

- Discharge from chemical plants and industrial factories:

Benzene	Carbon tetrachloride	Chlorobenzene/Dichlorobenzene	Dichloroethylene
Dioxin	Polychlorinated biphenyls (PCBs)	Trichloroethylene	Xylenes
- Herbicides and pesticides:

Alachlor	Atrazine	2,4 D	Dalapon, glyphosate	Simazine
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Radionuclides (Four Regulated Contaminants):

- Alpha particles—erosion of natural deposits of certain minerals
- Beta particles—decay of natural and man-made deposits of certain minerals
- Radium 226 and 228—erosion of natural deposits
- Uranium—erosion of natural deposits

The list of Secondary Standards is as follows:

Aluminum	Chloride	Color	Copper	Corrosivity	Fluoride	Foaming Agents
Iron	Manganese	Odor	pH	Silver	Sulfate	Total Dissolved Solids (TDS)
						Zinc

here—it's the same water that was here eons ago and it's all we have for ourselves and for future generations.

Since 1950, worldwide population has tripled, growing from 2.4 billion to 7.3 billion. Over this same time span the U.S. population has increased from 150 million to 315 million. Meanwhile, worldwide water use has risen by a factor of six over the past one hundred years. In the U.S., we use upwards of one hundred gallons of water per person per day, almost twice the amount as our European friends and about *twenty* times more than those living in sub-Saharan Africa!

In addition to the facts that the quantity of water is finite, that global population is growing, and that water usage is way up, we are finding more contaminants in our water than ever before. Over two thousand chemicals have been found in the U.S. drinking water supply, yet only eighty-seven primary water contaminants are monitored by the EPA. Over seventy-four million Americans in forty-two states drink chromium-polluted tap water, and arsenic, a highly toxic element, has been detected in the tap water in forty-three states.

Some of the *unregulated* chemicals in our drinking water include strontium and the antibacterial agent triclosan. Triclosan can react with the free chlorine in tap water to produce lesser amounts of other compounds, such as 2,4 dichlorophenol, which can convert into dioxins upon exposure to UV radiation. Although only small amounts of dioxins are produced, some are extremely toxic and potent endocrine disruptors. Dioxins are also chemically stable, so that they take a very long time to eliminate from the body and they persist in the environment as well.

Caffeine, isomorphine, metolachlor (an herbicide), perfluorooctane sulfonic acid (PFOS), and many other perfluorinated compounds such as PFOA (found in some nonstick and stain-resistant food packaging, fabrics and cookware) are linked to a variety of health problems, including cancer, and are present in blood samples of nearly everyone in the U.S. Other contaminants include MTBE (fuel additive), X-ray imaging media, BPA and artificial sweeteners, among a multitude of others. The bottom line is that fresh water is under tremendous pressure from

all sides.

THE LESS FORTUNATE

Over one billion people around the globe lack access to safe drinking water, and in many places indigenous peoples are being sidelined and excluded from debates about the fair and proper way that their water supply is managed.

Within the Asian and African continents and especially in the sub-Saharan area in a country like Ethiopia, for example, the issues are severe. Ethiopia has a population of ninety-nine million of whom *60 percent* lack access to safe water. This lack of water contributes to a very high infant mortality rate of 7 percent as well as health problems and resulting educational challenges. Women and children are generally tasked with the responsibility of getting water, often walking many miles for up to six hours to find water from unprotected water sources, while 90 percent lack access to clean sanitation facilities.

A 2500-YEAR-OLD STRUGGLE

The same struggle occurring today in Ethiopia and elsewhere—to provide clean drinking water on the one hand while properly disposing of wastewater on the other—has been playing out over the past twenty-five hundred years or so. During this time span, there have been five major revolutions centered on water.

The first water revolution grew out of the Roman Empire within the city of Rome itself, with the building of an intricate web of aqueducts and sewers. This occurred from 300 BC to 200 AD. As ancient Rome grew into a city of a million people, aqueducts were built to pipe water into the city. These were at the time, and remain today, an engineering marvel. Of course the arrangement was not perfect. It is well known that most of the pipes were made of lead. Lead is very malleable, making it easy to work with compared to other metals. It also won't rust. The problem, of course, is that it is poisonous. The Romans got lucky, however, as their water was rich in calcium and this mineral formed calcium deposits on the inner lining of the lead pipes. This provided them at least some protection against the ravages of lead exposure. Eventually, the Romans also built central sewer systems to flush the wastes generated within the city.

Ethiopia has a population of ninety-nine million of which 60 percent lack access to safe drinking water.

Systems like these emerged in other parts of Europe as well, but eventually, through further urban growth, the wastewater overwhelmed the drinking water and water-borne disease became commonplace. The belief for many centuries was that emanations of foul air (referred to as miasmas) were the cause of illnesses such as cholera and typhoid, not unclean water.

It was not until the middle of the nineteenth century that enough research and evidence pointed to the need for investment in water treatment, and the second revolution began. In Paris alone, nineteen thousand people died in a nineteenth-century cholera outbreak caused by drinking water from the polluted Seine River. Many more became sick in London from typhoid and cholera from the contaminated Thames River. These outbreaks were commonplace up until the late nineteenth century when water filtration using sand plus chlorine was first used in London to address atrocious water conditions.

It was not until 1908 that the United States established the first routine use of chlorine in a municipal water supply in Jersey City, New Jersey. By 1924, three thousand cities in the U.S. relied on chlorine for water treatment.

In 1900, the average American had a 5 percent risk of dying of a gastrointestinal infection. By 1940, that rate had dropped to .03 percent. Though highly effective and absolutely necessary, disinfectants such as chlorine are also highly toxic, and they have caused other problems that we will discuss a little later.

The third water revolution occurred post-World War II (1945 to 1950), consisting of two separate and seminal events. The first event involved the expansion and improvement of the country's sewer systems, which helped to mitigate the effects of dumping untreated sewage into our water supplies, reducing contamination and sickness. This was clearly beneficial as it directly improved the condition of our waterways and water quality.

Through the efforts of Dr. Henry Trendley Dean, DDS, the second event, fluoridation of public water supplies, was inaugurated in Grand Rapids, Michigan, in 1945. The logic of the "Father of Forced Fluoridation" and his supporters played out as follows: fluoride is naturally occurring so adding more to the water supply is beneficial. The crucial detail here is that *calcium fluoride* is the naturally occurring form of fluoride found in water at very low concentrations. The supplemental forms of fluoride used are instead synthesized industrial waste products such as sodium fluoride and fluorosilicic acid! This would be like saying that since arsenic,

OPTIMAL SOURCES OF WATER

Do you believe that some water is better than others? If so, are you drinking the best quality water available? From merely surviving to thriving, we can study those centenarian hot spots also known as "blue zones." Like our ancestors, the following groups of people obtain their drinking water from pristine streams rich in minerals, which absorb natural energy from the forests, the sun and the earth along its journey.

- Hunzakuts (Pakistan Mountains): irrigation channels through rock faces bring mineral-dense water from melting glaciers down to their valley;
- The Campodimelani (Italy): water from Mount Faggeta, known for richness in minerals;
- Bama (China): the Panyang River, found to have healthy amounts of zinc and other minerals;
- Other areas include Nicoyans (Costa Rica), Ecuador, the Caucasus region of Asia (just northeast of Turkey) Sardinia, New Zealand, Okinawa (Japan), and Panama.

Many have tried to define the best water for human consumption. Based upon investigation of the aforementioned healthy, long-living indigenous people from around the world, here is our takeaway. The water of these people consistently takes on very similar characteristics as outlined below:

- Safe: free of disease-causing microorganisms (bacteria, viruses, spores); heavy metals; chemicals from industry and agriculture; pharmaceuticals; disinfectants and related by-products; radioactivity; and synthetic fluoride;
- Fresh: neither salty nor stagnant;
- Clean: physically, biologically and chemically;
- Natural: coming from a pristine mountain stream, glacial river or fresh spring;
- Hydrating: water with low surface tension and thus better hydrating;
- Mineral balanced: contains a wide variety of minerals including trace minerals, excellent ionic activity (Total Dissolved Solids ~300 ppm), including cations such as calcium, magnesium, potassium and sodium; and anions such as nitrate, chloride, bicarbonate, sulfate and carbonate.

another deadly poison, is naturally occurring, let's add more into our water!

Fluoride accumulates in different parts of the body over time, creating consequences during a lifetime of exposure. One study found that ingesting fluoride had a huge impact on rats' brains, changing their behavior. British researchers found that thousands of people experience hypothyroidism because of drinking too much fluoridated water. Another study revealed that about 40 percent of U.S. teenagers have dental fluorosis, a condition in which the teeth become mottled due to changes in tooth enamel.

Adding fluoride to drinking water also raises plenty of ethical and practical problems as well. The dose is imprecise as it is impossible to know who ingests it or how to monitor how much treated water people drink each day. There's also zero consent. The fluoride is there, medicating you, whether you agree to it or not. That's why we refer to it as forced fluoridation!

Though chlorine saved many lives since its introduction in the late nineteenth century, it is only since the 1990s that the ravages of chlorine came to the attention of many people. Chlorine is necessary to protect the masses from large-scale outbreaks of disease. However, chlorine is a double-edged sword. It comes with unintended consequences in that it reacts with organic matter in the water supply to cause the formation of carcinogenic compounds such as trihalomethanes, haloacetic acids and mutagen X. The recognition of chlorine's harm caused the fourth water revolution.

It's what we could call both a blessing and a curse. As mentioned, chlorine as a water disinfectant has been critically important. However, we don't want it or need it in our homes. One of the byproducts of chlorination is chloroform. As we shower or bathe, we inhale chloroform, which has been linked with central nervous system disorders and liver dysfunction. It is unconscionable that fifteen years into the twenty-first century, with all of our advanced technology, we still allow chlorine, fluoride, and other known toxins into our homes via the public water supply.

Of course, with over two thousand other chemicals detected in our drinking water, chlorine represents only the tip of the iceberg!

The fifth water revolution is where we are

today—where the last line of defense is *you* in your home or place of business! We have many challenges facing us regarding safe, adequate supplies of clean water as we've just discussed. You can continue to wait for the government to fix the problem, or you can trust your own instincts, be empowered, take personal responsibility and gain peace of mind now! Many people have come to understand that relying on the government or other authorities to fix these problems is useless. We need to take personal responsibility as we do with our food choices. We don't place much trust in the USDA to protect our food supplies and the same holds true about trusting the EPA with our water quality. Remember, less than 5 percent of the chemical contaminants found in our drinking water are regulated by the EPA!

WHAT WE NEED TO KNOW

In addition to the aforementioned five water revolutions, there are also five aspects of your water that influence your home's water quality.

The first is the source of your water. The source of your water is only as good as the surrounding watershed. A watershed is a land area that feeds into a local body of water. Some of these watersheds are protected from environmental hazards while many others are not. Cities with protected watersheds include New York City, Boston, Seattle, Denver, San Francisco and Portland, Oregon. These cities with protected watersheds try to keep the sewage treatment as well as other contaminants (road salt, volatile organic compounds, etc.) away from the source of the drinking water. Unfortunately, the number of Americans with access to water from protected watersheds is estimated at less than fifty million.

Unprotected watersheds include the metropolitan areas of St. Louis, Philadelphia, Washington, DC, New Orleans, Los Angeles, Cleveland, Chicago, Detroit, Cincinnati and others. The Mississippi River represents the drainage ditch for more than 40 percent of the U.S. It alone collects the wastewater effluent from seventy million people, though the waste it collects from industry and agriculture is more of a concern. Wastes include pharmaceutical compounds, X-ray contrast media and artificial sweeteners. Some of these chemicals do not decompose, are not affected by sunlight, nor do they get cleaned

It was not until 1908 that the United States established the first routine use of chlorine in a municipal water supply in Jersey City, New Jersey.

There are
literally
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underground
pipes
throughout
the U.S.,
many of
them leaking
wastes and
contaminants.

up through microbial action at either the sewage treatment plant or the drinking water treatment facility. These processes are totally ineffective at removing these chemical compounds.

A good example of a protected watershed is the Quabbin Reservoir in Massachusetts, which serves a large percentage of the residents of the state, including Boston and its suburbs. The reservoir sits in a bucolic setting in central Massachusetts. The area was considered so pristine that its water was delivered completely unfiltered to homes. However, in the late 1990s, this unfiltered water began causing *E. coli* outbreaks. The MWRA (the state's water authority) was ordered by the EPA to build a water filtration plant. Instead of incurring this cost, the state decided to take watershed protection to a new level. The decision was to scare off birds that were contributing the bacteria via their droppings! The water authority used hovercraft, propane cannons, destruction of birds' eggs, and also built structures to keep muskrats and beavers from building nesting areas. To this day, Massachusetts continues to have unfiltered water delivered to its customers (it is chlorinated only).

It is important that the sources we use for our water supply are good, clean and readily available in an adequate amount.

WATER TREATMENT PROCESSES

The second key piece of the water puzzle is how your water is treated at your municipal water facility. Is it filtered, and how is it chemically treated? Methods include coagulation and flocculation—a gentle mixing of the water and treatment chemicals causing the impurities and particles to form larger floc particles, or flocules. Chemicals commonly used for this process include aluminum sulfate (alum), ferric chloride and synthetic polymers. The particles that are formed through coagulation and flocculation become increasingly large and eventually settle out of the water in large sedimentation basins. After sedimentation, the clarified water is passed through filters to remove particles of dirt, algae and harmful bacteria and parasites. Filters can be made from sand, gravel, coal or granular activated carbon. Disease-causing bacteria, viruses and parasites are destroyed by disinfection. Chlorine and chlorine-containing compounds are

typically used for disinfection purposes. New disinfection technologies may also use ammonia, ultraviolet light and ozone. Synthetic fluoride is added in many communities.

WATER DISTRIBUTION

The distribution and storage of your water is the third key aspect in water safety. The distribution system is the system of pipes that allows water to travel from the drinking water treatment plant to homes and businesses in your community. This system consists of pipes, pumps, valves, storage tanks, fire hydrants and meters. There are literally millions of miles of underground pipes throughout the U.S., many of them leaking wastes and contaminants. Capital investment need is estimated at over two billion dollars over the next twenty years for pipes alone! Many pipes are coated with biofilm, a bacterial, polysaccharide slime that forms when water contacts a hard surface. Inside city pipes, biofilm supports the growth of pathogens as the biofilm itself becomes impervious to disinfectants such as chlorine.

The fourth aspect of water safety concerns your home. Many older homes still contain lead solder or pipes. In fact, in Washington, DC, 10 percent of homes still show lead levels in their plumbing at five times the EPA maximum allowed levels. A further concern is that many communities are now using chloramines in their water. Chloramines will react with and slowly pit away copper tubing, creating risk of both damaged pipes and, more importantly, the introduction of excess copper into our water supply.

THE FATE OF WASTEWATER

The fifth and final aspect of water safety concerns what happens to your wastewater when it leaves your home. A city or town with its homes and businesses generates sewage (both black water and grey water), storm runoff and wastes from agriculture and industry. The sewage treatment facility takes all this in, processes it, and deposits the treated sewage as effluent into either an unprotected watershed or into the ocean. The majority of U.S. residents drink water coming from these unprotected sources.

Earlier, we mentioned the earth's natural water cycle. The five aspects of water safety just

described depict the man-made drinking water cycle of our time. This is the epic struggle that has characterized human history over the past twenty-five hundred years!

IT'S NOT JUST FOR DRINKING

We all know the importance of healthy fats, proteins, carbohydrates, phyto-nutrients, vitamins and minerals. And we all know that food, meal preparation and family gatherings that include real food provide great enjoyment in our lives. However, from a survival perspective, we can live many weeks without food. Without clean, fresh water, on the other hand, we cannot survive more than five to seven days.

We Americans use from ninety to one hundred gallons of water per person per day. Most of this is expended on laundry, toilets, showers, baths, outdoor uses and food preparation. Water use also extends beyond the home to include manufacturing, agriculture and medicine.

High quality food and beverage preparation is greatly dependent on high quality water. Think about bone broth, all of those fermented vegetables and beverages such as beet kvass, kombucha, coffee, tea and beer! Water is used to prepare just about every meal. We also use it while simply rinsing our fresh produce. Water is the key “raw material” for much of what we grow, eat and who we are! What type of water do you use to irrigate your gardens, vegetables

and animals?

Foods absorb chlorine and other chemicals when washed with regular tap water. Have you ever gone to a restaurant where the first thing that you notice is the smell of the chlorine in the water being served?

We simply have to make our water the best that it can possibly be, as it is so essential to optimal human health.

SOLUTIONS FOR EVERY FAMILY

If you are embarking on the journey to better water, you will want to assess your current situation carefully. Here is a set of critical questions that will help determine the best solution for you:

1. What type of water do you now have?
2. Which chemicals do you want to remove?
3. What troubles you about your water?
4. What are your specific water goals?
5. Do you rent or own your home?
6. How many bathrooms are in your home?
7. How many people live in your home?
8. When do you plan to act on your water needs?
9. What is your approximate budget for water improvement?

The good news is that solutions do exist for removing contaminants from your home's

We Americans use from ninety to one hundred gallons of water per person per day.

WATER TREATMENT PROFESSIONALS DO THEIR BEST, BUT REMEMBER. . .

As a nation, we discharge eight hundred fifty billion gallons of untreated sewage and storm water into our waterways. Two hundred eighty-five million Americans rely on public drinking water, and most of these people are drinking treated sewage every day! Authorities issue water advisories and water warnings as well as “do-not-drink” and “do-not-use” orders on a regular basis throughout the U.S. and Canada. This state of affairs is not surprising when you consider the following:

- Human error
- Natural disasters
- Budget constraints, decrepit systems
- Chlorine-resistant pathogens
- Industrial and agricultural contaminants
- Unintended consequences of disinfectants

The following recent emergencies and disasters have occurred as a result of the factors above:

- Milwaukee, WI, 1993: Cryptosporidium, more than 400,000 ill, more than one hundred deaths.
- Walkerton, Ontario, 2000: *E. coli*, 46 percent of population sickened; seven deaths.
- New Orleans, 2005: Hurricane Katrina, water plant devastation and epic humanitarian crisis.
- Toledo, OH, 2014: Microcystins algae: drinking water ban affecting 400,000 people.

The key ingredient for producing clean, safe water actually comes from a very unexpected place—good old basic carbon!

incoming water supply, thereby providing you with clean, safer water for drinking, cooking and preparing meals. We will describe options including point-of-entry (POE) and point-of-use (POU) systems for filtering and/or purifying your water for everyday use.

SOLUTIONS FROM NATURE HERSELF

The key ingredient for producing clean, safe water actually comes from a very unexpected place—good old basic carbon! The ancient Egyptians used a form of porous carbon as far back as 1550 B.C. for medicinal purposes. In the eighteenth century, carbon was used for the purification of liquids. Today, solutions include coconut shell, coal, and wood-based carbon products, targeting removal of the widest range of contaminants possible. Activated and catalytic carbon products are produced to strict performance standards and are often certified to NSF, UL and WQA standards for contaminant removal.

WHOLE-HOUSE FILTRATION AND CONDITIONING SYSTEMS

Point-of-entry (POE) systems, or what are also referred to as “whole-house systems,” are installed wherever the main water supply enters your home, possibly in your garage or basement. Owners of condominiums may have difficulty determining where their main water supply enters their unit. In these instances, the main water line cannot be easily accessed and only POU systems can be installed. Whole-house systems

are either filters or conditioners.

Whole-house filtration systems address all the water entering your home including water used for kitchen and bathroom sinks, showering, bathing, laundry, dishwasher, toilet and outdoor uses such as gardening. One properly sized filtration tank with the optimal blend of media within it will address chlorine, chloramines, fluoride, trihalomethanes, haloacetic acids, heavy metals and many other contaminants before they enter your home’s plumbing, while retaining essential minerals. Whole-house filtration systems feature a long filter life (typically one million gallons) requiring no regular maintenance. For a family of four using an average of ninety gallons per person per day, the duration of their filtration media will usually exceed seven years. When the time comes, only the filtration media need to be replaced, while retaining the original tank, making the replacement process simple and very cost effective.

Some systems will also incorporate electronic controls for timed periodic regeneration of the filtration media via a backwash cycle to ensure optimal ongoing filtration and long filter life.

If you have water that is high in minerals such as calcium and magnesium, this will result in what is known as “hard” water. You will see and experience evidence including sub-optimal sudsing or lathering, water stains, calcification on water fixtures and possibly clogged filters in your washing machine and other fixtures. If these conditions are present, a whole-house water

THE SANDS OF TIME ARE SLIPPING BY!

Time is running out! We cannot wait for the government and its agencies to get it right and provide us with top quality water in our homes. It’s analogous to food whereby you would not depend on the FDA or the USDA to guide you properly as to what to feed your family. Similarly, you can’t rely on the EPA to determine what is optimal water for you and your family. Our overall wellbeing depends on it.

Did you know?

- Our blood plasma is 90 percent water.
- Our bones average about 30 percent water.
- Our brain is mostly water.
- Our bodies consist of 55-65 percent water.
- Babies are 75 percent water.

Clean water means taking charge of our health! It’s about peace of mind. Maybe we can’t change the world but we can change our piece of the planet within our homes! And most importantly, it’s about our next generation.

softener or conditioner may be the appropriate solution for you.

Traditionally, the most common way of removing water hardness has been through the use of salt-based water softeners. Water softeners use an ion-exchange resin in which the calcium and magnesium ions are exchanged for sodium ions. In order to keep the softener working properly, large amounts of salt are needed to regenerate the resin on a weekly basis. Additionally, these systems produce a salty discharge that is not good for the environment, resulting in many communities banning or restricting their use.

Fortunately, we have an alternative to traditional salt-based water softening systems. New whole-house conditioners provide the most advanced anti-scaling water conditioning technology without resorting to harmful salt- or potassium-based systems. These systems employ catalytic media to prevent hard calcium scale from forming on critical appliances and heat transfer areas such as water heaters, dishwashers and pipes. They never require any direct maintenance nor do they require salt, backwash, draining or electricity.

It is important to note, however, that water conditioners (as well as water softeners) do not filter or clean your water in any way but rather reduce the possible negative consequences of excess calcium and magnesium in the water on your home's plumbing system. A water conditioner also requires that chlorine and other unwanted tastes and odors be removed first with a whole-house water filtration system prior to conditioning. Thus, whole-house water conditioning units are always paired with whole-house water filtration systems to provide the cleanest, safest water for your home.

Conditioning systems are designed to provide years of protection from scale build-up and reduce or remove existing scale from hard water supplies. These systems are intended for installation at the point-of-entry (POE), wherever the water supply enters your home, so it can treat your entire house for both hot and cold water.

POINT-OF-USE (POU) SYSTEMS

POU systems are typically installed at the kitchen sink providing you with filtered or purified water for drinking, washing fresh fruits and

vegetables and preparing meals. POU systems recently have expanded to include filtration systems that provide you with full-flow filtered water at locations other than your kitchen, such as in bathrooms throughout your home. The following solutions are available for removing contaminants present in your incoming water supply throughout your home, whether in the kitchen or in the bathroom sink, tub, shower or outdoor garden.

KITCHEN DRINKING WATER FILTERS

A simple, easy and inexpensive way of removing contaminants from your drinking water begins with a countertop kitchen drinking water filtration system. Often times they are in the form of single carafe-style pitchers that hold a few gallons of water and need to be refilled on a regular basis. These systems are designed primarily to remove chlorine and offensive tastes and odors while reducing other contaminants and impurities. Most systems are designed with a container holding a small amount of granulated activated carbon (GAC)—coconut shell carbon—along with an ion exchange resin. Unfortunately, due to the size of these filters, they need to be replaced on a regular basis, usually every two months, or the contaminants will begin to pass through the filter into your drinking water.

Multistage countertop or under-counter filtration systems are also available that can effectively remove bacteria along with a wider range of volatile organic compounds (VOCs) and a few heavy metals. Contaminant removal claims vary widely from brand to brand so it is very important to read the fine print and select the filter that can address the most common contaminants found in your incoming water supply. It is also important to understand the frequency and costs associated with filter replacement. These filters are typically in the form of a cartridge. Water filtration cartridges are typically two inches in diameter and ten inches in length. Due to their larger size and volume compared to carafe-style pitchers, these filters not only hold larger amounts of filtration media but also allow for a mixture of different types of media to be blended together to expand the range of contaminants that can be removed using one device. Typical applications for these filters include both countertop gravity filters and

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Specialty water
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under-counter filtration systems. The types and levels of contaminants that are filtered differ from one manufacturer to another so, again, it is always important to understand which specific contaminants the filter is designed to remove.

Water filtration cartridges typically are fabricated using coconut shell GAC media or activated carbon block media for the reduction of chlorine, off tastes and odors, along with a wide variety of organic and inorganic substances including VOCs and heavy metals. Specialty cartridges can also remove fluoride and other specific contaminants. Some filters are designed with a ceramic outer shell that contains the carbon media to remove particulates, bacteria and cysts. The life of ceramic filters can be extended with a monthly cleaning using an abrasive pad under cold water. Manufacturers generally recommend replacing these cartridges every six to twelve months depending on water quality and family size.

The most common types of kitchen drinking water filters are gravity filters, under-counter, and countertop filtration systems.

GRAVITY FILTERS

Gravity filters are an excellent choice for those looking to dramatically improve their drinking water with a highly portable, simple-to-use system requiring no installation to existing plumbing. Often made of stainless steel, the device rests comfortably on any countertop. A gravity filter enables you to have filtered drinking water on tap. Water is poured manually into the upper chamber; it then passes through the filter elements under pressure of gravity and into the lower chamber where the filtered water can be accessed via a tap on the front of the filter. Gravity filters can hold two or four filters, depending on how much filtered water is needed by your family on a daily basis. The more filters in the system, the faster the water will be filtered and available for drinking. Multiple filters also provide the option to select different types of filtration technologies, such as a ceramic filter for sediment, bacteria and viruses, plus a GAC filter for chemical contaminants, to address specific needs. In combination, these filters can provide high-quality drinking water.

UNDER-COUNTER FILTERS

Under-counter filtration systems are a great choice for people who prefer to conceal the system below the sink with only a dedicated water faucet visible. Under-counter water filtration systems do require connection to the existing plumbing and installation of the dedicated water faucet on your kitchen sink area. (Models are now available that connect directly to your kitchen faucet, not requiring a dedicated faucet. These are a great solution for providing filtered water in other locations in your home such as bathroom sinks.) Under-counter filtration systems are designed to house multiple cartridges, allowing you to select from a range of specialty filters to address specific concerns. Dual-cartridge systems are typically comprised of a sediment, ceramic, or multimedia filter plus a specified drinking water filter. The first filter removes bacteria, dirt, sand, sediment, rust, particles and other contaminants. The selected drinking water filter then removes the chemical contaminants including chlorine, VOCs and heavy metals present in the water. The key advantage of a multi-cartridge under-counter water filter is the ability to remove a wide range of contaminants in a single system including chlorine, chloramines, disinfection by-products, fluoride and heavy metals, among other contaminants. The main disadvantage is that these filters are POU systems, thus providing filtered water in only a single location in your home.

COUNTERTOP FILTERS

For those such as renters who cannot make permanent modifications to their kitchen sink area, an alternative solution is a countertop system. This is a free-standing water filtration system designed for easy installation with a diverter valve that attaches to almost any faucet that has a removable aerator. This system requires no modification to existing fixtures or plumbing. Simply by turning the lever on the diverter, you can alternate between filtered or unfiltered water. These are usually single-cartridge devices incorporating a single ceramic filter to remove the widest spectrum of bacterial and chemical contaminants from the incoming water supply.

PURIFICATION SYSTEMS

The definition of purified water varies but generally refers to water from which the highest possible level of impurities has been removed. Water impurities must be eliminated or reduced to extremely low levels. Purification technologies include reverse osmosis, deionization and distillation. Combinations of these technologies are often used to produce purified water with only trace and often undetectable amounts of contaminants remaining. Purified water should not be confused with filtered water, as they are very different. Purified water can only be produced through technologies producing water of significantly higher purity than filtered water.

Reverse osmosis, or RO, is a process in which water is forced through a semi-permeable membrane under pressure. In residential systems, this is accomplished by household water pressure (typically 60 PSI) pushing tap water through the semi-permeable membrane. The membrane only allows the purified water to pass through while the contaminants remain in the incoming tap water and are sent to the drain. RO is capable of removing more than 99 percent of dissolved inorganic solids, fluoride, VOCs, bacteria, viruses, nitrates, sulfates, chlorides and heavy metals such as arsenic, barium, chromium, lead and mercury from incoming water.

Most RO systems for residential use are designed with the same basic components. The real difference between the many products on the market is the quality of filters, membranes and components used inside the unit. Typical systems include the following stages:

- Sediment filter to remove dirt, sand, silt and other sediment.
- Activated carbon block filter to remove chlorine, off tastes, odors and other organic compounds.
- Reverse osmosis membrane to purify the water.
- Post filter (again generally carbon) to remove any remaining taste and odor problems.

The good news is that purification technologies that include RO membranes remove most if not all the contaminants from our drinking water. Unfortunately, they also remove the healthy min-

erals leaving the water acidic. To address these concerns, a few companies add additional stages to their purification systems to re-mineralize, restructure and rebalance the water, making it not only pure but also biocompatible.

SHOWER AND BATH FILTERS

Filtering your shower water is very important since up to two-thirds of harmful chlorine exposure can come from inhalation and skin absorption while showering. Shower filters are a highly effective option for removing chlorine and volatile compounds from your shower water. These filters can generally remove more than 90 percent of the incoming chlorine and are designed with a replaceable cartridge that is simple to install, compatible with most showerheads, and generally needs replacement only once a year. Please be advised, however, that due to the rapid flow of water passing through a small filtration device, shower filters do not effectively remove chloramines that may be present in your water supply.

Bath ball dechlorinators are a great way to enjoy baths without breathing or absorbing chlorine, chloramines and other volatile chemicals. These bath balls are designed to be circulated in the bath water for a few minutes to remove those contaminants. The filter media inside the bath ball can also be replaced in most products. Perfect for bathing infants and small children!

FOR THE GARDEN, TOO

Remember that healthy soil depends upon beneficial bacteria, fungi and microbes—the very things chlorine kills! Chlorine does not differentiate between harmful bacteria and the beneficial bacteria in your garden soil. You can protect this delicate ecosystem while maximizing the disease resistance of your plants with the right water filter specifically designed for your garden.

CLEANER WATER IN ANY SITUATION

Whether you have a home in the city, the suburbs, or a farm, solutions exist no matter what your living situation or budget. POU systems can be easily installed in apartment buildings and condominiums and are particularly useful when POE systems are not a viable solution.

Filtering your shower water is very important as up to two-thirds of chlorine exposure can come from inhalation and skin absorption while showering.

Drinking Water Systems Comparison


	Typical Entry-level Kitchen Filters	Gravity Filters	Under Counter or Countertop Demand Filters	Under Counter Multi Stage Purification Systems
How It Filters or Purifies	Carbon Block	2 or 4 Ceramic Filters	Using either 1 or 2 state-of-the-art Ceramic Filters (e.g. AquaCera EcoFast)	Multi-stage may include: Several Filters, 1 Reverse Osmosis Purifier, 2 Deionization Purifiers
What It Removes	Reduces Chlorine & Lead	>99.99% of many toxins. Less so for others	>99.99% of many toxins. Less so for others	99.999% of everything
What it Doesn't Remove	Most everything including Chloramines, Fluoride, VOCs, Nitrites & Nitrates	Partial reduction only for nitrites, nitrates, certain heavy metals, radioactive isotopes	Partial reduction only for nitrites, nitrates, certain heavy metals, radioactive isotopes	Nothing
What Else it Does	N/A	N/A	N/A	Beyond Purification... <ul style="list-style-type: none"> • Sterilizes (UV Light) • Restructures • Re-mineralizes • Produces Alkaline Water, <i>Naturally</i>
Advantages	<ul style="list-style-type: none"> • Has a filter change indicator • Better than totally unfiltered water while improving taste/odor 	<ul style="list-style-type: none"> • Highly Portable • Great for Emergencies • Easy to Operate • No installation to plumbing • Stainless Steel 	<ul style="list-style-type: none"> • Produces Water on Demand • Simple Install • Portable • Hidden below sink • Available in Stainless Steel 	<ul style="list-style-type: none"> • Built-in Backup Systems • Long Lasting Filters • Includes Electronic Test Meter • Produces Water on Demand • DIY Install • Great Warranty
Disadvantages	Reduction for only a few isolated contaminants	<ul style="list-style-type: none"> • Occupies countertop space • Need to remember to add water • Slow filtration • Water is at room temperature • Requires annual filter changes and periodic cleaning 	Requires annual filter changes and periodic cleaning	<ul style="list-style-type: none"> • Waste water is a by-product • Requires more under counter space
Investment	\$	\$\$	\$\$\$	\$\$\$\$

Under-counter POU water filters provide clean, filtered water either through a dedicated faucet or through your existing kitchen faucet. If your landlord will not allow you to install these systems, countertop filtration systems with their own dedicated faucets are another option. Alternatively, gravity-based filtration systems can also be used as a convenient source of filtered water for drinking and preparing meals.

For those living in the country on a private well, contaminant removal systems can be tailored to your particular water situation. A complete well water test is always required before a filtration solution can be recommended. However, solutions do exist for addressing high levels of iron, manganese and hydrogen sulfide often found in well water, along with other specific concerns such as high levels of sediment or low pH. Water softeners and conditioners also exist to treat water high in natural minerals such as calcium and magnesium, or “hard” water. Finally, whole-house systems can also be used with well water tainted with man-made contaminants such as herbicides, pesticides, pharmaceutical residuals or industrial solvents.

Once you know the levels of contaminants in your drinking water supply, you can take the next step and identify the right water filtration and/or purification system to protect you and your family from the dangers of these chemical contaminants. Although your local water quality report generally provides a good snapshot of the quality of the water entering your home, the only way to know specifically which contaminants are present in your drinking water is to have your water tested. Water entering your home may have different levels of contaminants than reported locally since contaminants may enter anywhere along the distribution system or even from the copper plumbing inside your home. It is always recommended that you have your water tested by a professional, nationally recognized, independent laboratory.

The bottom line is this: great solutions to improve your water exist regardless of your situation. Whether you rent your home or own it, live in a small or sprawling residence, reside in the city or the country, have a modest or flexible budget, rely on private well water or city water, it matters not. The keys to great water are in your

hands to empower you to transform the water in your home or place of business to be the best it can possibly become. 

Norm LeMoine is the president of Radiant Life, a family business pleased to be a perennial sponsor of the Wise Traditions International Conference and WAPF since 1999. A former chemist, Norm transitioned into a seventeen-year career in executive positions within the automotive and high tech industries before starting and leading several start-up companies. Over the years Norm has advised thousands of people on optimal ways to improve the water in their homes and businesses. A lifelong health researcher and fitness enthusiast, he lives with his wife Kathy in the great state of Maine.

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RESEARCHERS COLLECTING HEALTHY CHILDREN STORIES

WAPF members, mothers and educators Gena Mavuli and Johanna Keefe announce their emerging website, Growing Success Stories at growsuccessstories.wordpress.com.

They are looking for testimonials on the growth and health of children brought up on the WAPF diet. Please email your stories—and photos—to holisticnutritionbasics@gmail.com.

They would also like to extend a special invitation to mothers who submitted a story over the years to the Healthy Baby Gallery to submit an update, and to remind us what issue your children were featured in *Wise Traditions*! This will provide a continuity that will be valuable in promoting ancestral diets for the health of mother and child.

INTERESTING WATER FACTS

- Water is the most common substance found on earth.
- Water is the only substance found naturally in three forms: solid, liquid, and gas.
- Eighty percent of the earth's surface is water.
- Ninety-seven percent of the earth's water is saltwater in oceans and seas. Of the 3 percent that is freshwater, only 1 percent is available for drinking—the remaining 2 percent is frozen in the polar ice caps.
- Water serves as nature's thermometer, helping to regulate the earth's temperature.
- Once evaporated, a water molecule spends ten days in the air.
- An acre of corn gives off 4,000 gallons of water per day in evaporation.
- Forty percent of the atmosphere's moisture falls as precipitation each day.
- People need about 2.5 quarts of water a day to maintain good health. A person can live without water for approximately one week, depending upon the conditions.
- While usage varies from community to community and person to person, on average, Americans upwards of 100 gallons of water a day for cooking, washing, flushing, and watering purposes. The average family turns on the tap between 70 and 100 times daily.
- About 74 percent of home water usage is in the bathroom, about 21 percent is for laundry and cleaning, and about 5 percent is in the kitchen.
- A clothes washer uses about 50 gallons of water (the permanent press cycle uses an additional 15 gallons).
- It takes 12 - 20 gallons of water to run an automatic dishwasher for one cycle.
- About 2 gallons of water go down the drain when the kitchen faucet is run until the water's cold.
- About 2 gallons of water are used to brush our teeth.
- Flushing a toilet requires two to 7 gallons of water.
- A ten-minute shower can take 20 - 50 gallons of water. High-flow shower heads spew water out at 6 - 10 gallons a minute. Low-flow shower heads can cut the rate in half without reducing pressure.
- About 25 - 50 gallons are needed for a tub bath.
- A typical garden hose can deliver 50 gallons of water in just five minutes.
- It takes about four times the amount of water to produce food and fiber than all other uses of water combined.
- About 4,000 gallons of water are needed to grow one bushel of corn, 11,000 gallons to grow one bushel of wheat, and about 135,000 gallons to grow one ton of alfalfa.
- It takes about 1,000 gallons of water to grow the wheat to make a two-pound loaf of bread, and about 120 gallons to produce one egg.
- About 1,400 gallons of water are used to produce a meal of a quarter-pound hamburger, an order of fries and a soft drink.
- About 48,000 gallons are needed to produce the typical American Thanksgiving dinner for eight people.
- About 1,800 gallons of water are needed to produce the cotton in a pair of jeans, and 400 gallons to produce the cotton in a shirt.
- It takes 39,000 gallons of water to produce the average domestic auto, including tires.
- Producing an average-size Sunday newspaper requires about 150 gallons of water.
- Water makes up almost two-thirds of the human body, and 70 percent of the brain.
- Four hundred gallons of water are recycled through our kidneys each day.
- Water makes up 80 percent of an earthworm, 70 percent of a chicken, and 70 percent of an elephant.
- Water makes up 90 percent of a tomato, 80 percent of pineapples and corn, and 70 percent of a tree.
- About 60,000 public water systems across the United States process 34 billion gallons of water per day for home and commercial use. Eighty-five percent of the population is served by these facilities. The remaining 15 percent rely on 13 million private sources.
- It can take up to 45 minutes for a water supplier to produce one glass of drinking water.
- You can refill an 8-ounce glass of water approximately 15,000 times for the same cost as a six pack of soda pop. And, water has no sugar or caffeine.
- An average of 800,000 water wells are drilled each year in the United States. That's tapping into our underground water supplies at approximately 100 times each hour for domestic, farming, and commercial needs.
- The United States and Canada have about one million miles of pipelines and aqueducts – enough to circle the planet 40 times.

SOURCE: oldhamcountywater.com/interesting-water-facts.html

Water Stressors and Blood Flow

Why You Don't Want to Put Aluminum into Your Bloodstream

Marty C. Michener, PhD

How does liquid behavior at healthy cell surfaces affect critical functions in living cells? Do recently discovered physical properties of water better explain elements of blood flow physiology—the mysterious way the blood flows through our narrow veins?

Many modern diseases are called idiopathic—cause unknown. Biologists are realizing that it is time to revisit basic cell physiology—how do things really work? Exciting articles by Drs. Stephanie Seneff and Robert Davidson¹ suggest that tissues work in a highly coordinated manner, using a physics hitherto unexplored. This article examines the causes of sudden death or heart attack—which likely depend on our fuller understanding of water structure and physics—and sheds a new light on the common medical practice of vaccination.

Our tissues work in a highly coordinated manner, using a physics hitherto unexplored.

SURFACE TENSION

Before we can understand the differences between plasma—the solution that forms our blood—and lymph—the solution between our tissues outside of blood vessels—we need to examine what is now known about water itself. Surface tension (ST) is best seen where water forms an interface (Figure 1).

ST tends to behave like a “skin,” rounding the contact surface. Adding salt increases the ST, raising the drop and making the contact point at a larger angle. Soap is called a surfactant, as it lowers ST, and reduces the contact angle.

What is surface tension and how do you measure it? ST is understood to represent cohesion, where water molecules H_2O exert a stronger attraction for each other than they do for air or for waxed paper. They exert a pulling, contracting force, against which a counter force is needed, “f,” as indicated in Figure 2.

The most practical way to measure ST is with a tiny bore glass tube, where glass is wetted by most water solutions (Figure 3). The exact weight of the water risen inside can be calculated from its volume and density, and this force exactly counters the pull of the surface tension on the glass wall. The surface tension can easily be

calculated knowing the height and the diameter of the bore. For a liquid like mercury which does *not* wet glass, placing a tube into it will *depress* the surface, and a different calculation is necessary.

Think about familiar ST examples to get a better view of these forces (Table 1). Notice that in pure water, bubbles do not last very long, as the high ST breaks them.

Mercury with a very high ST forms tight rounded drops with high contact angles. Imagine breaking a mercury thermometer, and then trying to coax a droplet back into the tiny bore of the glass. The drop would roll off the top, rather than enter. You would need high pressure to overcome its ST, to force the mercury into a narrow glass bore, whereas water would establish a cohesion with the glass and be drawn quickly inside.

We employ soap in washing because it “wets” surfaces like fats and waxes, making them easier to suspend and rinse away. Many proteins also lower ST, and we cook with them to make a persistent foam, such as a meringue or soufflé.

COLLOIDAL SUSPENSIONS

Another odd property of liquids and solids is how two substances that do not mix can be

Table 1: Surface Tension Characteristics of Various Liquids

LIQUID	SURFACE TENSION	DENSITY	WETS GLASS or METAL?	BUBBLES?
Pure water	high	1	yes	poorly
Salt water	higher	1.1	yes	no
Albumin, protein in water*	low	1	yes	yes
Soapy water	very low	1	yes	yes
Mercury	very high	13	no	no
Alcohol	low	0.8	yes	some

* examples: egg white, beer, whipping cream, dough, plasma, lymph, cytoplasm

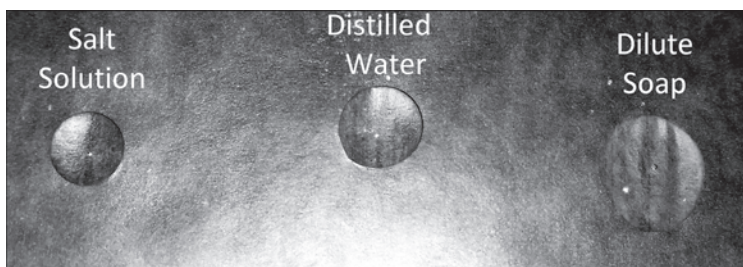


Figure 1: Three droplets on waxed paper.

suspended, as oil in water, or as a gel. One forms the continuous phase, the other is finely divided into particles or droplets. In a gel (as inside a cell), the solid forms the continuous phase, and the liquid (water) is divided into pockets.

Suspensions are most often made more stable when each droplet or particle has a similar electric charge. The most vital fluid we will discuss is blood, where the vessels are lined with endothelial cells, which like the red blood cells (RBCs) are all coated in a negative charge of about 40-50 millivolts (mv). This charge is called “zeta potential,” (ZP) and acts as a repellent between cells at close distances. It is critical to providing blood fluidity and preventing actual contact between the blood cells and the blood vessel wall. Negatively charged ions or particles are called anions (positive are cations).

Some familiar colloids utilize surfactants as emulsifiers, to stabilize their droplet structures. In making mayonnaise, cooks use the lecithin from a fresh egg yolk to coat the oil droplets; otherwise the emulsion in the bowl would break down into oil and a few bubbles of mustardy-lemon juice. Milk employs many proteins to preserve the suspension of solids and butterfat. Blood also uses albumins and an odd construc-

tion of sulfated chains, which favor the formation of water blankets due to water layering behavior.

Many colloids are broken down if either the surfactant is altered (as by pH shift toward acid or basic) or if the zeta potential is diminished. The latter can be reduced by simply adding salt to the colloid, as happens in nature when (anionic) clay suspended by erosion in river water enters the ocean, and the mixing of salt greatly speeds the deposition into off-shore clay sediments. The particular ions that are in the salt can make a huge difference to this effect. Wastewater treatment facilities are required by EPA to remove many suspended colloidal bio-wastes before discharging the water to a river, and they employ alum (aluminum sulfate) to “floculate” the colloids, precipitating solids so they settle to form sludge, clearing the water for release.

Suspensions are most often made more stable when each droplet or particle has a similar electric charge.

INTERFACIAL TENSION

Perhaps the most important aspect of surface tension and “wetting” lies hidden within each protein molecule in our body's vast array of structures and enzymes. It is the action of surface tension at the “interface” of water and protein, where the question becomes: how much does water “wet” a protein surface?

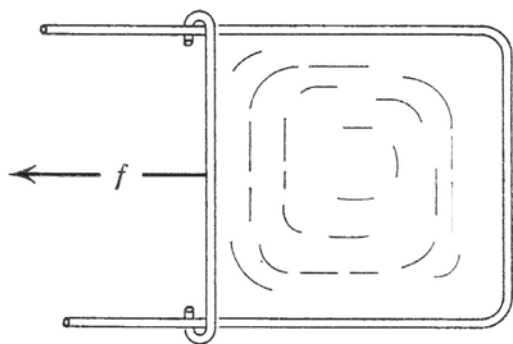


Figure 2: Diagram of water cohesion pulling a wire with force “f.” Redrawn from F. Daniels & R. Alberty. 1961. *Physical Chemistry*. John Wiley & Sons.

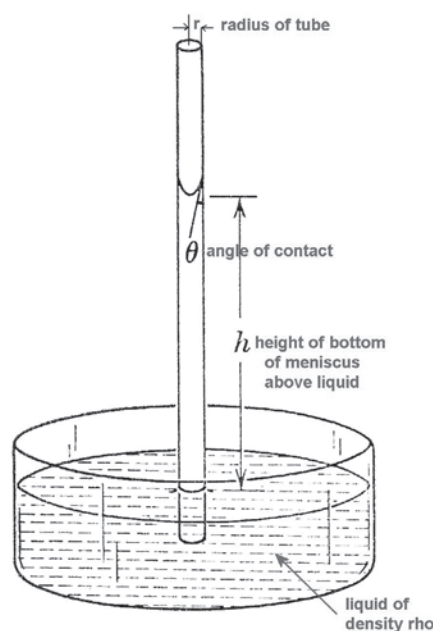


Figure 3: Measuring surface tension. Redrawn from F. Daniels & R. Alberty. 1961. *Physical Chemistry*. John Wiley & Sons.

The molecular secret to the EZ water is that it forms hexagonal honeycomb sheets, sequentially staggered over one another.

All proteins have a unique amino acid (AA) sequence, generated by the DNA code. Some of these amino acids are hydrophobic, meaning they are like lipids and repel water (such as alanine, valine and leucine). Others are hydrophilic, meaning they are charged and attract water (such as lysine, histidine and glutamic acid). The hydrophilic amino acids are “wetted” in plasma (Figure 4).

All are parts of the same protein; each exerts forces on the molecule surfaces, which usually means the hydrophilic, wetted parts face outward to the water, and the hydrophobic parts face inward.

One must understand that as the tension (ST, interfacial) grows or diminishes, the actual shape and thus the function of each protein may change. We need to explore how a change in ST in blood can affect one's health.

WATER LAYERING BEHAVIOR

All of these properties come into play in balancing the roles of water in living tissues, but we also need to explore very recent studies to understand the relation between cell physiology and Dr. Pollack's “fourth phase of water.”

Decades ago, Dr. Gerald Pollack of the University of Washington found pure water next to

ionized plastic surfaces behaving in a previously “undocumented manner,” forming very thick organized layers.² These layers exhibit properties of both liquids and solids, can grow to become millions of molecules thick, and develop a negative charge, excluding protons (hydrogen nuclei) into solution as hydronium (acid) ions, H_3O^+ (Figure 5). Using only energy from incident light or infrared, such sheets exclude most solutes and suspended particles, so Pollack has named these sheets Exclusion Zone (EZ) water, or the fourth phase of water—a liquid crystalline phase, added to gas, liquid and solid.

The molecular secret to the EZ water is that it forms hexagonal honeycomb sheets, sequentially staggered over one another (Figure 6).

These liquid-crystals form coherent domains, acting in many respects as a single, superconducting quantum unit (Figure 7).

BIOLOGICAL FLUID BEHAVIOR

The biological significance of Pollack's work, recognized by many and published in 2012 by Seneff and Davidson, cannot be overstated, and helps explain many phenomena we observe in nature.

Consider the evolution of animals from sedentary forms, into types capable of swift

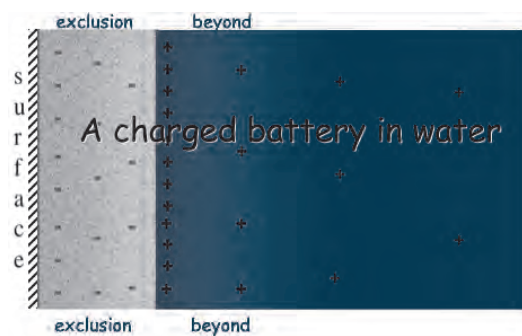
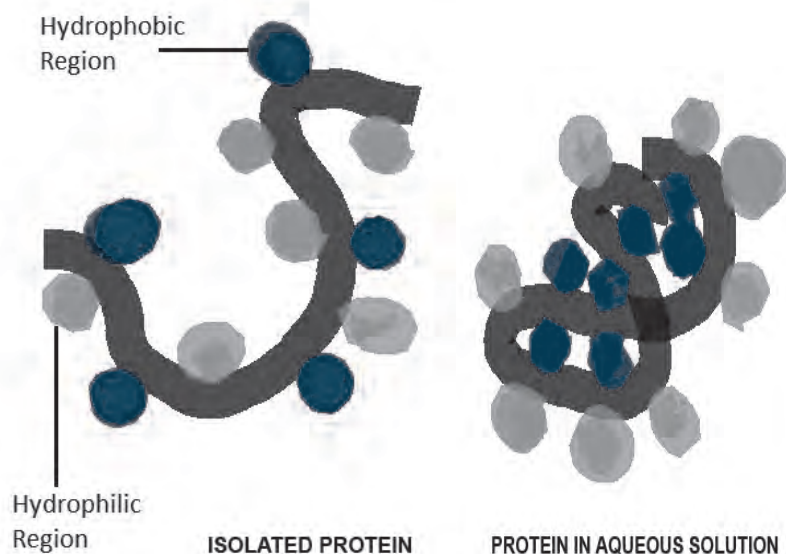


Figure 5: Diagram of EZ water, by Pollack, G. from <http://faculty.washington.edu/ghp/images/stories/separationCharge.png>.

movement, requiring at a minimum coordinated muscle and nerve membranes which maintain a displaceable electric charge at all times, and a circulatory system for delivering oxygen and removing carbon dioxide at rates hitherto impossible by earlier biota. To achieve these, animals require cell surfaces that foster the growth of EZ water, as each sheet of structured water acts as a giant anion blanket to provide protection for these delicate charges from solutes and pathogens, and from accidental contact by nearby tissues. It is also possible that EZ domain superconductivity provides and ensures rapid de- and re-polarization over long distances for myelinated axon nerve conduction. This means nerve conduction does not depend merely on the flow of electricity in the salty lymph solution, but the EZ blankets may provide resistance-free “wires” surrounding each nerve cell.

How can we relate what we know about these physical aspects of water to functioning cell physiology? We first must establish a theory of cells cultivating EZ water, then examine ST and the relation of both to the charge (zeta potential) that keeps cells (RBCs) moving through capillaries seemingly too small to allow them to pass through.

CELL SURFACES AND SULFATES

Dr. Stephanie Seneff and her co-authors have explored the interactions of water at interfaces, both inside and outside cells.^{3,4} Surface anions seem to require sulfate projections, which

begin with the often unfairly vilified cholesterol (Figure 8).

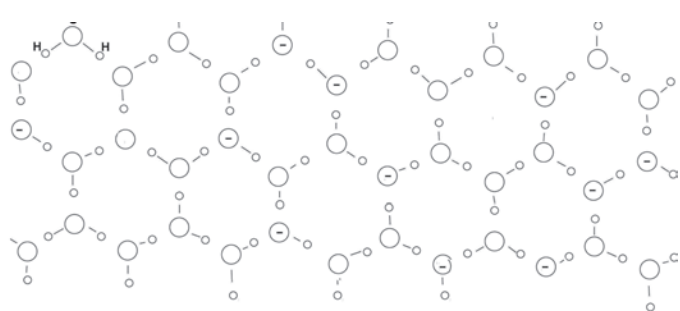
This is the soluble (anionic) form of cholesterol, the main job of which is maintaining cell membranes. It forms the lipoproteins (LDL, HDL) which carry healthy lipids to repair membranes everywhere. According to these authors, it is one of our most vital compounds. How does the body synthesize this useful form of cholesterol?

Cholesterol sulfate (Ch-S) is synthesized whenever sufficient dietary sulfur is supplied and sunlight combined, via the enzyme in the capillary endothelium: endothelial nitric oxide synthase (eNOS) (Figure 9). As with many energy transformations, the eNOS reaction also depends on the mineral zinc as a coenzyme. Seneff's extraordinary proposal is critical to explaining how healthy membranes use EZs to maintain their integrity.

What are the properties of the anion sulfate (SO_4^{-2}) itself? It is familiar as the minerals gypsum (CaSO_4) and Epsom salts (MgSO_4) and sulfuric acid (H_2SO_4). It is classed as a kosmotropic ion—one that “organizes” any nearby proteins. In fact, too much free sulfate organizes water into a gel which will not flow, appropriate inside the cytoplasm, but certainly not in the blood. The kidneys have evolved to excrete excess sulfate so blood levels never rise to this dangerous point.

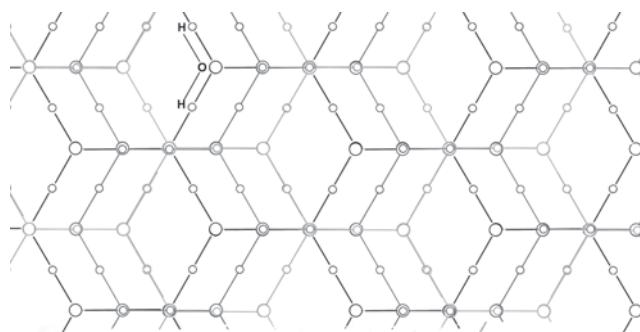
With 99 percent of our molecules being water, it's surprising that we don't just collapse into a puddle! Pollack believes that the main reason our tissues are not liquid is that nearly all

With 99 percent of our molecules being water, it's surprising that we don't just collapse into a puddle!



EZ Water Forming from H₂O Molecules. Model by G. Pollack

Figure 6. A hypothetical radial cation hexamer. Davidson, Lauritzen & Seneff. 2013. “Biological water dynamics and entropy: a biophysical origin of cancer and other diseases.” *Entropy* 15: 3822-3876.



Three hexagonal EZ water sheets. Model by G. Pollack

Figure 7: Shifted hexagonal layers of EZ water. Redrawn after: Davidson, Lauritzen & Seneff. 2013. “Biological water dynamics and entropy: a biophysical origin of cancer and other diseases.” *Entropy* 15: 3822-3876; reproduced from Chaplin (2013).

Cholesterol sulfate (Ch-S) is found on blood cell surfaces and can deliver sulfate as needed to other complex membrane molecules, without thickening the blood.

the water is maintained in a gelled state by these kosmotropes.

As Seneff notes, “. . . the one big exception to this model is the blood. The blood that courses through our veins is definitely a liquid, and if it were to become gelled it would lead to a no-flow situation and a major catastrophe. This, to me, is the key reason why all these biologically active molecules travel through the blood stream in a sulfated form.”⁵

Cholesterol sulfate (Ch-S) is found on blood cell surfaces and can deliver sulfate as needed to other complex membrane molecules, without thickening the blood.

Heparan sulfate (Figure 10) is a monomeric subunit of the polysaccharide chain found in all animal tissues. The outermost cell surface forms a fuzzy structure (glycocalyx), made of glycosaminoglycans (GAGs)—with anionic sulfate hydrophilic projections that promote building EZ water. Indeed, the cell membranes use sulfate delivered by Ch-S to build these projections, which have the property of readily absorbing light including infrared, thus building EZ protective blankets.

Let's summarize uses for sulfate in tissue maintenance (ignored at present by clinical medicine):

- Sulfated macromolecules perform membrane maintenance—nerve and muscle

membrane surfaces are dominated by GAGs.

- EZ water maintenance—the sulfate projections of these huge polymers favor development and stabilization of EZ water.
- Lysosome digestion—inside cells, damaged molecules and structures are regularly maintained by lysosomes, which ingest then digest the damaged or foreign material and then recycle the basic nutrients (sugars, amino and fatty acids). Indications are that with inadequate sulfate this digestion fails and long-term damage builds up, offering a strong potential explanation for idiopathic nerve and brain aging diseases.

In their original report, Davidson and Seneff show electron micrographs, taken by Bleau and others,⁶ of RBCs under the stress of a diluted plasma solution. The first case shows RBCs in extreme distress, spheres with prickly projections owing to the osmotic pressure. To the second case has been added a very dilute solution of Ch-S, (cholesterol sulfate, 0.00001 M), and the RBCs appear as typical smooth, hollow doughnut-shaped cells, dramatically illustrating the protective nature of Ch-S.

How can these RBCs, seven microns in diameter, pass easily through capillaries only four to five microns in diameter? The answer is that all are equipped with Ch-S and negatively-charged

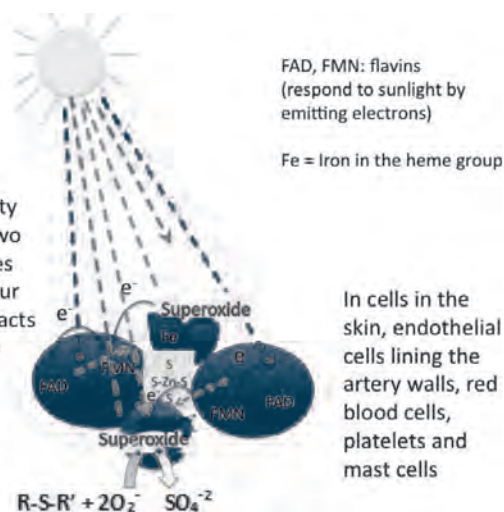
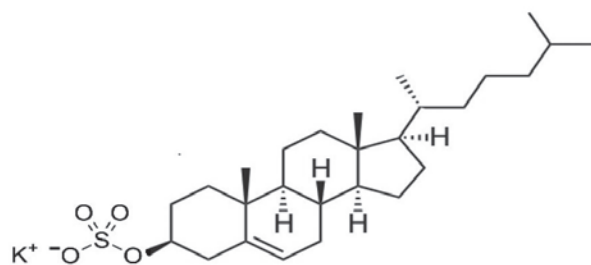


Figure 8: Cholesterol sulfate. Robert M. Davidson and Stephanie Seneff, “The Initial Common Pathway of Inflammation, Disease, and Sudden Death,” *Entropy* 2012, 14, 1399-1442.

Figure 9: Sunlight and sulfation of cholesterol. Robert M. Davidson and Stephanie Seneff, “The Initial Common Pathway of Inflammation, Disease, and Sudden Death,” *Entropy* 2012, 14, 1399-1442.

surfaces of sulfates and EZ blankets (Figure 11). These properties are augmented by RBCs shedding Ch-S as they enter from the arteriole (left), giving the narrowing vessel an additional local negative charge, relative to the venule ahead (right). This can produce a weak battery, tending to propel the RBCs forward.

BALANCE DISRUPTIONS

We know that blood is closely regulated by many organs, especially the liver and kidneys, which first detoxify and then excrete foreign bodies and chemicals. We can now additionally explain maintenance of membrane potentials and surfaces necessary for rapid O₂ and CO₂ gas diffusion by well-sulfated glycocalyx and EZ blankets.

Dr. Pollack has reported that imposing electric fields reorients water molecules and completely disrupts EZ water domains. For any regional electric field, the boomerang-shaped water molecules align so the oxygen points to the positive pole and the two hydrogens point to the minus pole.

If the EZ water blankets are an essential part of nerve conduction, as several of us have speculated, this may be a major reason alternating current (AC) electric shocks have such a profoundly disruptive effect on mammals—they erase the EZ water blankets within the alignment of current. This theory also can explain how death follows from electrocution. Conversely,

the traditional healing treatment of both light and infrared possibly rebuilds and energizes EZ domains, and may provide an explanation for restoration of immune function and other healing effects associated with their therapeutic use.

We know that disruptions to surface tension will alter protein shapes, and increases in ST will prevent blood flow in small tubes (recall the mercury example). Theoretically, it is possible that under very high ST, blood will exit both ends of the capillaries, leading to a cascade of clotting events and death from heart attack, heart failure or stroke.

Diminishing the zeta potential will directly remove the charges that sustain the blood flow and maintain cells as a colloidal suspension.

Davidson and Seneff¹ devote many pages to what they call exogenous interfacial water stressors (EIWS), unusual salts and surfactants that raise the ST. A considerable amount of fairly ancient research has gone into the physics of ST versus salts in *in vitro* lab tests. They summarize: to the surprise of no wastewater treatment engineer, almost no salt combination ruins both ST and zeta potential as quickly at low concentrations as soluble aluminum, Al³⁺ (Figure 12).

Human gut and skin have developed in a world where aluminum is the third most common element, yet no known biological use or tolerance for aluminum has been found. Mammals have numerous systems to prevent its entrance to the blood or lymph. So, how could aluminum

How can these red blood cells, seven microns in diameter, pass easily through capillaries only four to five microns in diameter?

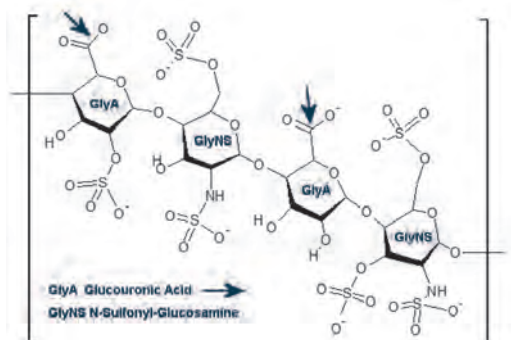


Figure 10: Structural formula typical for heparan sulfate. Davidson, Lauritzen and Seneff, 2013. “Biological water dynamics and entropy: a biophysical origin of cancer and other diseases.” *Entropy* 2013, 15: 3822-3876.

A proposal: (a) RBC loses charge through capillary. (b) Negative charge builds on artery wall. (c) Battery poles are thus maintained between artery and vein.

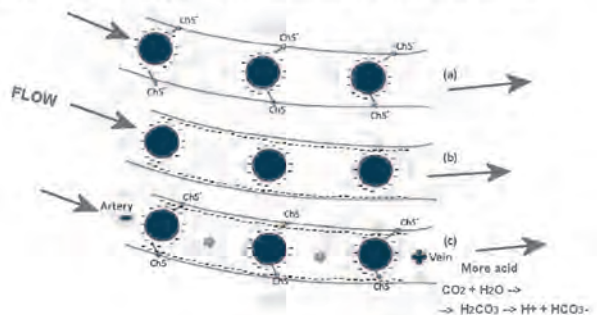


Figure 11: Robert M. Davidson and Stephanie Seneff, “The Initial Common Pathway of Inflammation, Disease, and Sudden Death,” *Entropy* 2012, 14, 1399-1442.

penetrate into our blood? Consider these steps:

- Some pesticide residues are known to selectively kill gut microbes.
- A healthy microbiome keeps the gut lining properly sealed.
- Dysbiosis produces toxins that destroy the gut lining.
- Aluminum is a common ingredient in some baking powders and also in refined salt.
- Glyphosate is now routinely sprayed on grains just prior to harvest.
- An imbalance results in both amino acids and the living gut microbiome.
- The liver's CP450 detoxification pathways are inhibited.
- Wheat, as baked flour, contains much gluten, previously thought harmless.
- Leaky gut permits both aluminum and gluten to directly enter the blood.
- Aluminum stresses the immune system to produce antibodies.
- Antibodies to gluten constitute “gluten intolerance,” now an “idiopathic” epidemic.⁷

How else could soluble aluminum get directly into the blood? It gets there as a vaccine adjuvant (adjuvant means “helper”)!

Without aluminum in a vaccine, the body just breaks down and eliminates foreign proteins and nucleic acids—antibodies are never made. This ruins the whole vaccine story, which claims that vaccines are effective

because they produce antibodies. So a “helper” is “needed.”

One flaw in certain vaccine trials is that subject reactions to the full vaccine are compared to reactions to just the aluminum adjuvant sans the antigens. In this way, all the negative reactions in trials are never blamed on the vaccine.

Dr. Viera Scheibner monitored infant breathing patterns for many weeks.⁸ Shallow, rapid breathing (hypopnea) indicates a stressed condition, which SIDS researchers had previously called “false alarms.” Instead, she found, following vaccine injections, such alarm reactions increased within one to two days, with a period of resistance developing at five to seven days, and the child appearing to recover. This was followed by exhaustion around day sixteen, with worsening stress evident. The forty-one babies that died at various points during this process were classed as SIDS, as these stressors were categorized as insignificant.

The late physician Andrew Moulden⁹ believed that vaccinations cause mini-strokes, and the common aluminum adjuvants explain why, especially as aluminum serves to collapse both zeta potential and EZ water blankets, and also acts as a neuro-toxin.⁴

CONCLUSIONS AND HEALTHY RECOMENDATIONS

Under no circumstances should aluminum in any concentration be allowed to pass the natural barriers of skin and digestion. Maintain healthy membranes with adequate organic sulfur from foods (egg yolks, meats, seafood and vegetables from the onion and brassica families), adequate zinc from foods (red meat, shellfish, liver) and sunlight. Healthy animal fats can provide needed fatty acids for nerve repair. Avoid all exposure to surfactants such as artificial detergents, sodium lauryl sulfate and sodium lauryl ether sulfate. These are anionic surfactants; that is, they have a negative charge in solution. Instead, use animal or vegetable fat-derived soaps. Diets of microbiome renewal sources from fermented foods can support a healthy gut lining. ☯

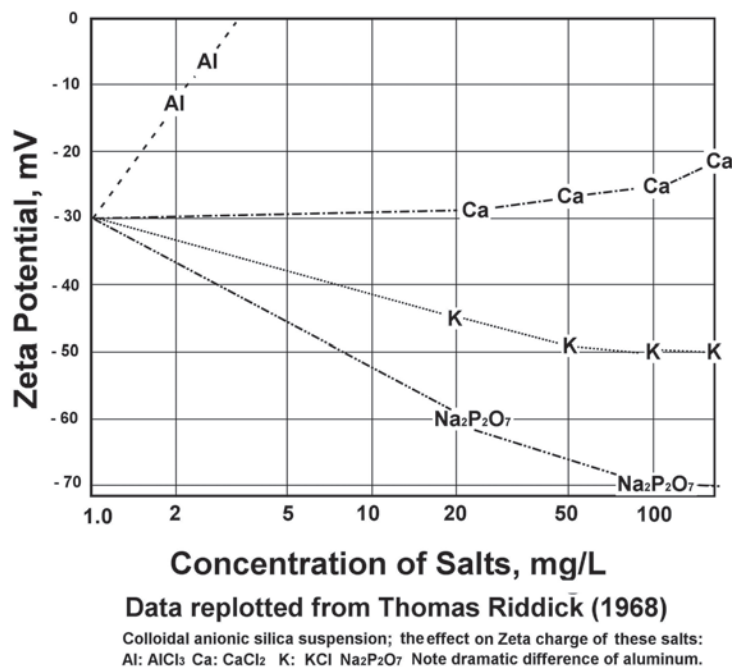


Figure 12: Riddick, T. *Control of Colloid Stability through Zeta Potential (with a Closing Chapter on Its Relationship to Cardiovascular Disease)*; Livingston Pub. Co., Wynnwood, PA, USA, 1968.

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2013, and on soils: *Beneath the Fruited Plain—scratching the surface of New England Landscapes*, 2014. Since 2011, he has reviewed the ecology of diseases, and focused on developing expertise in regenerative soil health and human nutrition.

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VOCABULARY OF BIOPHYSICAL TERMS

Anion, anionic: (pron. an'-eye-on-ik) ion or molecule with negative charge.

Cation, cationic: (pron. cat'-eye-on-ik) ion or molecule with positive charge.

Coherent Domain: acting as a single entity, crystal or molecule in response to light or magnetic energy.

Density: grams per milliliter.

EIWS: Exogenous Interfacial Water Stressor "from outside" "at the protein-water interface" water "causing stress to the solubility/shape of proteins."

Endothelial Nitric Oxide Synthase (eNOS): an enzyme previously thought mainly to produce the signaling gas Nitric Oxide (NO), now believed also to sulfate cholesterol in sunlight.

Glycocalyx: the outer fuzz on many cell membranes, projecting hydrophilic sulfate ends.

Glycosaminoglycans (GAGs): sugar-protein chains forming outer membrane of cells.

Hydrophilic: water-loving, wets and attracts water cohesively.

Hydrophobic: water-fearing, mostly lipids which form no ionic bonds to water.

Idiopathic: disease with unknown cause.

Kosmotropes: ions which thicken or organize nearby dissolved proteins.

Lipoproteins: proteins attached to long-chain lipids

Lysosome: a cavity in most cells which digests damaged or foreign material for recycling.

Microbiome: the host of living microorganisms normally within your body providing many kinds of health help and balance.

Millivolts: 0.001 volts, electrical potential.

Monomeric: a single example unit, to be repeated as a polymer.

Zeta Potential: the charge, usually in millivolts on a colloidal body, droplet, cell or particle that may prevent collision with neighboring bodies.

Reading Between the Lines

Nutrition Updates by Merinda Teller, MPH, PhD

Red Meat: The Food They Love to Hate

In late October 2015, one of the nutrition establishment's most cherished villains—red meat—hit the newsstands again in a big way. A report by the cancer agency of the revered World Health Organization (WHO) attracted major media attention by pronouncing processed meats as carcinogenic and red meat as “probably carcinogenic” to humans.¹

Painting red meat with a broad brush, the WHO's International Agency for Research on Cancer included beef, veal, pork, lamb, mutton, horse and goat in its definition, although the agency admitted that its characterization of these items as “probably carcinogenic” is based on limited evidence. The report is stronger in its condemnation of processed meats, citing evidence that is both “sufficient” and “convincing” enough to declare unambiguously as carcinogenic all meats “transformed through salting, curing, fermentation, smoking, or other processes,” including hot dogs, ham, sausages, corned beef, beef jerky, canned meats, and “meat-based preparations and sauces.”² For lovers of bacon and prosciutto, as well as of delicious reduction sauces, this comes as bad news.

Although the WHO experts who produced the damning report reviewed studies involving over a dozen types of cancer, the report's conclusions primarily concern colorectal cancer. Colorectal cancers are the second leading cancer killer in the United States and the third most common cancer worldwide. There are striking regional disparities in incidence, however. The highest incidence rates for colorectal cancers are in North America (the U.S. and Canada), some European countries, Australia, and New Zealand; the lowest risk is found in China, India, and parts of Africa and South America.³

THE HIDDEN ROLE OF VEGETABLE OILS

Because colorectal cancers start in the colon

or rectum (which are part of the large intestine), it makes intuitive sense that diet is likely to be a determinant of increased colorectal cancer risk. Apologists for mainstream nutrition, however, have generally been unwilling to condemn any dietary factors other than the usual suspects. Thus, even before the October release of the WHO report, the standard colon cancer prevention advice featured the recommendation to limit consumption of red meat. This recommendation was buttressed by selected research identifying an apparent correlation between meat-eating and colon cancer in industrialized countries.

But there is more to the story. In their analysis of myths and truths about beef (*Wise Traditions*, Spring 2000),⁴ Sally Fallon and Mary Enig pointed to studies indicating that meat-eating is *not* associated with cancer in traditional societies. To understand this seeming contradiction, it is important to look closely at other elements of the nutritional picture in industrialized versus traditional societies. One major factor that has differentiated these two broad camps until recently is the aggressive inclusion of industrially produced and toxic vegetable oils in every conceivable corner of the modern westernized diet. (Sadly, things seem to be changing for the worse elsewhere as well, as in India, where a “colorless revolution” is displacing native cold-pressed oils such as coconut, rape seed and sesame oils extracted with a stone press, with introduced foreign oils extracted with heat or solvents.⁵) Fallon and Enig observed that over the course of the twentieth century, beef consumption increased by 46 percent, but consumption of vegetable oils rose by a whopping 437 percent.⁴

Polyunsaturated fats such as corn oil and soybean oil are highly unstable and vulnerable to oxidation—and oxidation, in turn, is linked to cancer—while the omega-6 fatty acids that predominate in vegetable oils have been shown

Over the course of the twentieth century, beef consumption increased by 46 percent, but consumption of vegetable oils rose by a whopping 437 percent.

to accelerate the growth of tumor cells.⁶ As Fallon and Enig explain,⁴ excessive consumption of toxic polyunsaturated oils—not red meat—represents a known mechanism for colon cancer: “Colon cancer occurs when *high levels of dietary vegetable oils and hydrogenated fats, along with certain carcinogens*, are acted on by certain enzymes in the cells lining the colon, leading to tumor formation” [Emphasis added].

In short, meat-eating is not associated with cancer in traditional societies because modern polyunsaturated vegetable oils and carcinogenic additives are largely absent from traditional diets, which instead include ample saturated fats (important for stabilizing the proteins that fight tumors).⁷ In contrast, industrialized diets include numerous carcinogens, while consumption of commercial vegetable oils (and fear of saturated fats) run rampant.

In the context of these patterns of vegetable oil consumption, the regional disparities in colorectal cancer incidence mentioned above make complete sense. As author Chris Kresser observes, “Most Americans that eat red meat eat it with a huge bun made of white flour, with a serving or more of other refined carbohydrates (chips, fries, soda) cooked in rancid, industrially processed vegetable or seed oils.”⁸ Kresser reasonably asks, “How do we know that it’s the red meat—and not these other foods—that is causing the increase in cancer?”

CONSIDERING THE BIGGER PICTURE

In their respective critiques of the “processed-red-meat-causes-cancer” thesis, Kresser⁸ and blogger Zoë Harcombe⁹ both point out that the observational studies reviewed by the WHO have numerous methodological shortcomings. The studies that formed the basis of the WHO’s headline-grabbing conclusions ask dietary intake questions of dubious reliability, follow people over time without examining their full dietary and lifestyle picture, and then dredge around in the data, looking for decontextualized patterns. (As Harcombe dryly comments, “No pattern = no journal article, so look hard!”⁹)

In discussing the limited evidence for the “probable” link between red meat and colorectal cancer, the WHO itself concedes that it is not possible to rule out other explanations (which it

helpfully describes as “chance, bias or confounding”).² Harcombe agrees, arguing that even when studies strive to adjust statistically for baseline differences in relevant factors such as socioeconomic status, body mass index, physical activity, smoking status and diabetes, it is impossible to grapple fully with all the factors that differentiate “the couch potato” from “the paleo buff” (her ideal), or to take into account the “chasm” that separates fresh and traditionally preserved meats from modern manufactured meat products.⁹

WHAT ABOUT THE GUT?


Regular *Wise Traditions* readers who are attentive to the importance of gut health will not be surprised to learn that the gut microbiome likely influences the relationships between dietary factors, including red meat consumption, and cancer risk.⁸ These relationships are interesting, complex and not yet well understood. In fact, exactly how the gut microbiome “interacts with foods to produce health conditions” is considered a new and dynamic area for further research by individuals on all sides of the red meat-colon cancer debate.¹⁰ For example, researchers at Harvard Medical School are studying fecal samples to assess the impact of red meat intake on gut microbes and their byproducts, which the researchers speculate may influence “biological pathways associated with colorectal cancer and other digestive diseases.”¹¹ Such studies are sure to underscore the importance of a healthy gut microbiome in mitigating cancer risk, regardless of the specific hypotheses and conclusions about red meat consumption.

STICK WITH TRADITIONAL FOODS AND MEATS

The vegan crowd is undoubtedly celebrating the rise in meatless Thanksgivings this year, documented by a recent Yahoo! Food survey.¹² Vegans probably also are ready to applaud the WHO’s efforts to reduce the appeal and consumption of red meat and processed meat. The WHO makes an anemic attempt to have it both ways—acknowledging the “known health benefits” of eating meat and admitting that consumption of red meat “has not been established as a cause of cancer” but nonetheless continuing to advise a limited intake of processed meat and

The studies that formed the basis of the WHO’s headline-grabbing conclusions ask dietary intake questions of dubious reliability, follow people over time without examining their full dietary and lifestyle picture, and then dredge around in the data, looking for decontextualized patterns.

red meat because of their links “to increased risks of death from heart disease, diabetes, and other illnesses.”² Unfortunately, this longstanding and oft-repeated bias against red meat means that researchers who assert an association between red meat and cancer probably will continue to be assured of an enthusiastic reception, however poorly designed or lacking in context their studies may be.

Fortunately, thoughtful eaters accustomed to eating omnivorous, nutrient-rich diets—including braised red meat stews and home-cured bacon—are likely to be willing to dig beneath the headlines to make up their own minds. 

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HOW COWS ARE HELPING THE PLANET

“Farting cows prompt twelve-year-olds to turn to vegetarianism” could be the startling headline in one sixth grade classroom, where passionate youngsters are ready to argue that “farting cows” are the harbingers of climate change doom. This belief is promulgated all over the Internet. For example, Dr. Neal Barnard (president of a vegan-diet-promoting nonprofit) argues that every last cow on the planet is “belching out methane.”¹ Barnard's proposed solution? “Eat grains, beans, and other plant foods directly, instead of feeding them to animals.”

The problem with this advice is that domesticated cows (and their wild ancestors) were not and are not designed to eat much grain. (As Joel Salatin comments, it runs contrary to nature's framework to feed cows grain, fermented forage, or carrion, “even if it makes them grow faster, and even if they seem to like it.”²) The prevalence of abusive feedlot animal production systems should not obscure the basic fact that, “For most of human history, browsers and grazers...ate what we couldn't eat—cellulose—and turned it into what we could—protein and fat.”³

Furthermore, methane is the product of plant breakdown, wherever it occurs—whether in the rumen of the cow or on the prairie, or in wetlands—in fact, wetlands are a major source of methane. And no one is blaming the millions if not billions of ruminants that formerly roamed the planet for climate change.

Why does it matter that cows are natural ruminants, ideally suited to digest high-cellulose-containing plants rather than pesticide-laden corn and soybeans? It matters because cows can help save the planet. According to Judith Schwartz in her discussion of “improbable ways of restoring soil to heal the earth,”⁴ holistic management of livestock can reverse desertification and restore land. Here's how it works: domestic herbivores, when properly managed and allowed to graze, trample, “bunch” and move on, ensure soil cover and the establishment of new plants. In turn, “a broad swath of plants get a good nibbling but none are overgrazed nor over-rested.” These practices produce soil that is “healthy, diverse, and resilient,”⁵ while at the same time storing excess carbon dioxide in the soil.⁵ Perhaps if those sixth graders could regularly visit farms where suitable rotational grazing practices prevail, they might understand that greedy and unnatural industrial farming systems are more deserving of their indignation than cows.

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Technology as Servant

AVOIDING GLYPHOSATE IN FEMININE HYGIENE PRODUCTS

By John Moody

Some startling news interrupted and superseded my original plans for this column with its urgency: a recent Argentinian study has found glyphosate in tampons.¹ Now, this news in itself, while galling, did not surprise me. Cotton, after all, was one of the first genetically modified (GM) crops, is one of the heaviest consumers of industrial agricultural chemicals—in particular, the herbicide Roundup, whose active ingredient is glyphosate—and is used in a wide variety of personal care products, from cotton clothing to cotton swabs. Cotton is, by percentage, the most prevalently grown GM crop in the United States and 96 percent of all cotton grown in the U.S. is GM cotton.

What surprised me about the finding was the apparent lack of concern in the social media reaction to this revelation. Do most people truly not understand that glyphosate isn't "just" a food problem (and a most sinister food problem, at that)? Do most people truly not care that government agencies have abnegated their obligations to protect citizens from toxic agricultural chemical exposure in something as intimate as feminine hygiene?

A bit of human physiology is good to elucidate at this juncture: human vaginal tissue is nearly perfect in its ability to rapidly and completely absorb substances that come in direct contact with it. This means that glyphosate in tampons and other feminine hygiene products will be readily absorbed through the vaginal walls and directly enter the bloodstream. This pathway to the bloodstream is more direct than if the glyphosate were consumed in food. Stop to consider this fact for a sobering moment or two.

It is useful to remember that when glyphosate was first introduced its makers assured the public and regulatory agencies that their product was rapidly "biodegradable" and therefore safe. In 2007, however, Monsanto lost a major lawsuit

in France regarding their misleading claims and advertisements as to glyphosate's alleged—and since disproven—claims of rapid biodegradability. The chemical giant was "punished" with a paltry fine for its perjury. During the early 2000s, glyphosate was discovered in everything from commercial baby formula to human breast milk to *in utero* human fetuses. Most recently, the World Health Organization has classified glyphosate as a probable carcinogen.

Another thing that surprised me on the social media sites was those who argued that discovering such chemical contamination wasn't a big deal. Don't these people grasp the concept of bioaccumulation of toxins? Don't they realize that along with being a probable carcinogen, glyphosate is also an antimicrobial, and we are finding it in all sorts of places that harm the sensitive microbiome of our bodies and our babies' bodies? (For more on this side of the subject you can check out my executive column at farmtoconsumer.org).

In light of all of the above, it made sense to me to focus on this topic in order to give readers alternatives to standard personal care products, especially for feminine hygiene. It is also worth a reminder that glyphosate is just one of many disclosed and undisclosed contaminants in these products. Companies have only very recently provided users with a measure of transparency about their products.² Just because a product doesn't contain glyphosate doesn't mean it is not contaminated with other toxic agricultural residues, plastics or processing toxins.

FASCINATING AND FRIGHTENING

When you begin to look into the studies on glyphosate, you become very alarmed very quickly. Here are just a few gripping highlights: Humans who eat a conventional diet have the highest levels of glyphosate detected in their

Glyphosate is just one of many disclosed and undisclosed contaminants in feminine hygiene products.

Glyphosate is the “textbook example” of the disruption of homeostasis by environmental toxins.

urine, and people who are the sickest have the highest rates in this group. Crops have been found to contain far more glyphosate than expected at harvest. Glyphosate has been found to alter the gut microbiome, along with affecting key enzymes and other biological activities.³ Researchers stated, “we show that glyphosate is the ‘textbook example’ of exogenous semiotic entropy: the disruption of homeostasis by environmental toxins.”

This so-called biodegradable herbicide has a half-life of forty-seven to one hundred seventy-four days in the soil. If it gets into water or air, it is resistant to breakdown by water and sunlight, increasing its persistence. In some studies, scientists have found that a big selling point for the pesticide—that it binds tightly to minerals in the soil, like calcium, boron and manganese, thus preventing runoff—also means it competes with plants for those nutrients. Other research indicates that glyphosate can alter the mix of bacteria and fungi that interact with plant root systems, making them more susceptible to parasites and pathogens.⁴

SAFE ALTERNATIVES

Since I am not entirely qualified to speak of feminine hygiene products and their applications and effectiveness, I enlisted a little help to conclude this topic with credible first-hand experi-

ence and advice. Two female friends agreed to share their strategies in finding safe alternatives to the conventional products widely available. Note that there is no single solution that will be preferable for all women. Luckily there are many creative options to explore that include both do-it-yourself solutions as well as safe alternative brands to purchase.

My friend N.F. shares her experience: “I started using cloth pads for menstruation, but I have a heavy flow and needed a lot of them, which wasn’t very cost effective for me. I tried the DivaCup [see below] and never found it comfortable. I also found it pricey and it was completely unusable after my first baby, which meant I would have to replace it with at least two new ones after each baby. I was also hesitant that it was made with plastics and silicone. I wanted something more natural and cost effective. So, I use sea sponges for menstruation. I sew natural, unbleached wool string through them for easier removal. Since I started using them, I’ve had two additional kids and have had no “fit” issues. I have found these to be usable even when out and about if I have reusable, water-proof snack bags on hand. I have a lot of these bags and label them for multiple purposes: the kids’ snacks when we are out, used wet wipes (repurposed baby wash cloths), my feminine products, soiled cloth diapers. These all get washed with the cloth

ALTERNATIVE BRANDS OF FEMININE HYGIENE PRODUCTS

SEA SPONGES:

seaspongecompany.com/products/sea-clouds-sea-sponge-tampons

REUSABLE MENSTRUAL CLOTHS:

Glad Rags and Luna Pads (be sure to get the organic cotton versions!). Many women also make their own menstrual rags and you can easily find do-it-yourself directions online (gladrags.com and lunapads.com/lunapads).

MENSTRUAL CUPS:

Keeper and DivaCup (keeper.com/learn-more/questions and divacup.com).

ORGANIC COTTON TAMPONS AND MENSTRUAL PADS:

Natracare, the world’s first manufacturer of alternative feminine hygiene products, was founded in England twenty-five years ago by a woman appalled by “the unconcerned response of the international feminine hygiene brands” to the pollution in their products (natracare.com/products).

BYE BYE BRAS:


Most bras are made of a mixture of highly processed cotton and synthetic fibers. They can impair circulation and other body systems. The good news is that some studies and lots of women’s experience have shown that bras are unnecessary and even counterproductive to breast wellness.⁵

diapers, so they all go in the diaper pail. I make powdered laundry detergent using castile soap, soda ash, a bit of borax, a bunch of salt and tea tree oil. I use vinegar in the rinse cycle and wool balls in the dryer."

Here is another approach from my friend K.L.: "The DivaCup is an amazing and life-changing alternative to the chemicals in tampons and pads, which many women are not even aware of. The DivaCup is an eco-friendly feminine care product that works amazingly well! It is a small silicone cup that is inserted into the vagina. When it fills with blood you remove it, dump it out, and reinsert. It works better than any pad or tampon, and you cannot even feel it. The cup comes in different sizes for teens and adult women.

"You can carry on with your usual activities, and not worry about the uncomfortable feel of some of these other products. The best part is that it is made with silicone, and does not contain any of the following: latex, plastic, PVC, acrylic,

acrylate, BPA, phthalate, elastomer and polyethylene, and is free of colors and dyes. Silicone products have been shown to be biocompatible (i.e., accepted by the human body without adverse reaction). Another great feature is that you can see exactly how much you are bleeding each cycle, and be more in tune with the flow of your body.

"Luna pads are another great alternative to chemical-laden pads. They are more comfortable and eco-friendly. You wash them with your laundry. By choosing to use washable and reusable menstrual pads and cups you are no longer exposing yourself to the potentially harmful chemicals and synthetic materials found in most disposable pads and tampons, making them better for our environment as well." 

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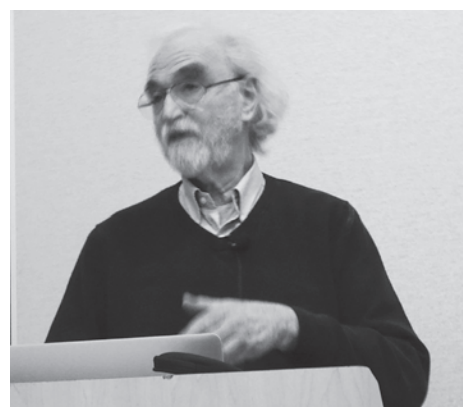
CONFERENCE SPEAKERS



Indefatigable activist for raw milk Mark McAfee of Organic Pastures Dairy inspires attendees at the closing ceremony. Organic Pastures donated butter, cheese and sixty gallons of raw cream to the conference!



Naturopath Phillip Weeks, from the UK, was a new and very popular speaker at Wise Traditions.



WAPF was honored to host Professor Gerald Pollack from the University of Washington. His work on water has revealed water's many unique properties.

Homeopathy Journal

HOMEOPATHY FOR WOMEN

By Joette Calabrese, HMC,CCH, RSHom (NA)

Nearly every time I mention that I gave birth to my babies at home, someone credits me with bravery. Bravery?! No, I say; I wasn't brave. In fact, I was a chicken. I was much more afraid to have my babies in a hospital because that's where the dangers lie, not in my bedroom.

I had my first child in a hospital. Not because I wanted it that way, but because the doctor who agreed to a home delivery backed out at my eight-month mark and I couldn't scramble fast enough to find an alternative attendant. Today I would be able to find someone, or would consider doing it alone with only my husband present. After all, birth is not normally a medical event unless, of course, it is intended to be.

None of what I did was inspired by courage. It was pure, unadulterated fear. I could actually muster a full-blown panic attack by just imagining myself and my precious child in the hands of hospital staff, hooked up to IVs filled with who knows what, and MRSA (Methicillin-resistant *Staphylococcus aureus*) lurking in the bowels of the hospital. I knew that if I was going to fend off these thoughts I was going to have to read, study and crack the code myself.

When the attending doctor realized how long I had been in labor, he became more nervous than my poodle when the mailman arrives. I had been in labor for about fifteen hours. The staff commenced setting up an IV, despite my protestations that I did not need it. I chewed on ice chips instead. The doctor insisted on pitocin (a drug designed to speed up the labor process), but I fought back with, "No IV and no drugs, thank you."

I knew even then that it wasn't about courage as much as it was about being informed. It wasn't bravery that I possessed, but rather a keen interest in researching every facet of my child's first moments. I also knew that it's not just about turning over one stone, but every single stone in the quarry until the answers are revealed. Once

you gather all the facts and make note of who's offering them (the pharmaceutical industry's "facts" are biased to the industry), the decision becomes apparent.

HOMEOPATHY FOR LABOR

Had I known then what I know now, I would have employed *Caulophyllum* 30 every hour or two, which would have moved the baby along in short order. Not having this information, however, I just remained pig-headed stubborn. I knew from having read several books on the subject of midwifery that I could deliver without intervention.

I accepted it as my duty. Childbirth is one of the most important stages of a woman's life. The decisions a woman makes at this time will determine not only her fate, but the fate of her children and even her grandchildren. Remember, one round of diethylstilbestrol, commonly known as DES (the synthetic form of the hormone estrogen), has been shown to exert adverse effects upon *three generations*.

To illustrate my point further, allow me to share how homeopathy addresses two more stages of a female's life. I call them "The Three Fates of Feminopathy," with pregnancy listed as the second fate. Let's start with the youngest fate, or first phase of a woman's life, which centers on a girl's transition into womanhood.

HOMEOPATHY FOR SKIN PROBLEMS

Pippa is a plucky fifteen-year-old, distraught and embarrassed by her appearance. Her skin had been lovely and clear until she turned fourteen. Now her face is red with blemishes, and her complexion has become her all-consuming obsession: she was certain everyone was eyeing her. Pippa was on daily antibiotics and prescribed facial scrubs. More recently her doctor had recommended birth control pills in addition to her other meds as a means of attaining the clear skin she

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so desired. His argument was almost reasonable because it promised to alleviate her menstrual pains as well, but taking birth control hormones didn't sit well with her mother and father.

They believed there had to be an alternative way to treat her teenaged skin without resorting to such extreme measures. Did Pippa really need daily doses of synthetic hormones?

Because appearance and self-esteem are so important in the life of a teen, resorting to questionable medications and hormones as quick fixes might be tempting, but Pippa's mother knew that toying with the body's regulatory systems was a dangerous game, particularly at such a tender age. Have doctors forgotten this, or did they just never learn it?

Pippa's parents didn't fall for the easy fix. In fact, the doctor's recommendation made her mother quite angry. Their job was to protect their daughter from reckless advice.

Enter homeopathy. Homeopathic remedies are by far the most reliable method for the removal of recalcitrant acne and painful menses. Homeopathy is gentle, safe, has no side-effects and is not habit-forming. Most important, it protects young women from dubious, age-inappropriate drugs.

Homeopathy restores the body to health and unearths the predisposition for particular problems, often in spite of diet or lifestyle. Pippa was happy to hear this, because it affirmed she wasn't willfully doing anything to cause her condition.

The homeopathic method known as the "Banerji Protocol" for acne is *Hepar sulphuris calcareum* 200C mixed with *Arsenicum album* 200 C. Upon learning this, Pippa's parents refused the birth control drugs, stopped the medicated scrubs and eliminated all antibiotics.

Within one month, instead of red, painful, cystic lumps on her face, Pippa was left with only a smattering of smaller blemishes on her forehead. This improvement restored her confidence, while her vivacious personality began to reemerge. Over the next two or three months, Pippa watched her pimples slowly dissipate, becoming nothing more than a memory of those difficult days in the past.

Today she is a happy teen, free from dependence on patented prescription drugs that didn't work anyway, and some that could have hurled

her endocrine system into hormonal upheaval.

POST-MENOPAUSAL CONDITIONS

The post-menopausal phase, or Third Fate of Feminopathy, often includes something Fay (Pippa's mom) suffered as a result of manufactured drugs. At fifty-three, Fay suffered from hot flashes that were debilitating. She had seen her doctor and submitted to tests. While at the doctor's office her blood pressure tested high so anti-hypertensive meds were prescribed along with hormone replacement.

But Fay was not happy. In fact, she began to suffer from anxiety attacks and headaches. She was lately beginning to suspect that the drugs were causing more problems than they solved. She had always made it a general policy to avoid meds, as they often made her conditions worse, so she expressed her fear: "But Doctor, I never had these headaches and anxiety attacks before taking the blood pressure meds." Her doctor shrugged and explained that Fay had no other choice, and that it might take some time before the drugs "settled" in her body. When she echoed the same problems again a few months later, it provided her doctor the necessary justification for choosing yet another drug to add to Fay's regimen. Yet Fay was certain that taking a medicine ought not to result in a new disease requiring more drugs, and she was by now ready to reconsider this model of prescription medications altogether.

When I teach homeopathy and work one-on-one with my clients, I urge them to sharpen a pencil with a good eraser and on a long sheet of paper construct a timeline of their past ailments and treatments. Without this crucial step, many drugs and their side-effects go unnoticed, particularly symptoms that are easily dismissed as "normal."

Fay had documented her health history and so she saw that her head pain began near the time she started taking the blood pressure medication. The alarming arrhythmia and panic seemed to start then, too.

This is why I urge you to embrace the value of fear. To this day, Fay cannot precisely recall the moment when clarity dawned for her, but she does recall tapping into the fear of how much damage conventional drugs were causing

Without a detailed health history many drugs and their side-effects go unnoticed, particularly symptoms that are easily dismissed as "normal."

both her and her daughter Pippa. Following her epiphany, however, she set her jaw and began to read, study, and take courses. Her own father had imparted to her from childhood that the most successful people in life are those who invest in their education. She had not considered her family's health and her own to be a matter of study until events rather forced the issue.

Once she did, learning how to treat herself and her family became her womanly mission. She first chose homeopathic medicines to begin treating herself in lieu of drugs for each of her conditions. Her schedule of homeopathic remedies looked like this:

1. *Camphora officinarum* 200 used as an antidote previously ingested prescription drugs.
2. *Lachesis mutus* 200 for heart arrhythmia that appears at menopause, as well as unrelenting hot flashes.
3. *Sepia* 200 for headaches, particularly those that accompany menopause.
4. *Aconitum napellus* 200 for high blood pressure.


Ignatia 200 could have also been included

for her frequent panic attacks, but once Fay decided to invest in her education, the plaguing thoughts disappeared.

While the pharmaceutical drugs had steadily caused new and more sobering ills, the homeopathics returned her original sense of well-being and eliminated previous symptoms like the un-spooling of a thread. As though on cue, her head pain was conspicuously and happily absent. After many months of nauseating "medications," she found the turn of events extraordinarily satisfying.

FEAR: MOTIVATOR OF CHANGE

I hope Fay's fear of patented drugs remains active. Fay's journey not only carried her through her own health challenges, but also those of her daughter, and most certainly will light the way for the following generations of her family as well.

Julia Child once said, "Every woman should own a blow torch." This, my friend, is ours. Light up your blow torch of self-determination and education and let's set our world on fire. 

Women are the best healers in the home. Should you be interested in becoming the healer in your home, feel free to go to JoetteCalabrese.com and learn how to treat thirteen common (and not so common) conditions through homeopathic solutions with "The Three Fates" graphic. For even more, see Joette's latest course, "Feminopathy: How You Can Correct Female Ailments Using Safe, Inexpensive and Effective Homeopathy." You may meet with Joette for a FREE fifteen-minute consultation to determine if homeopathy is the right fit for you and your family by calling (716) 941-1045.



Didi Studzinski of The Olive Bar donated fifty gallons of delicious organic olive oil for salad dressings.



ABOVE: Paul Greive and Jeff McDaniel of Primal Pastures. BELOW: Whitney and Carol Egoian of A Little Nuts.



ABOVE: Jean Turn and Laura McDonald of White Oak Pastures
BELOW: Asher Cowan of Dr. Cowan's Garden.



Chef Lance Roll of the Brothery.



From the Archives

DIET IN RELATION TO DENTAL CARIES

By Prof. E. V. McCollum

In this fascinating article, McCollum, a leading scientist of his day, sought to determine the cause of tooth decay. He notes that vitamins A and D help build strong enamel and teeth, and may provide certain immune factors, facts which he tries to meld with the theory that bacteria present in the mouth are the cause of decay. The description of the diet for diabetics is especially interesting—in the days before insulin, the only way to treat diabetes was with a high-fat diet—and this diet also protected these patients against tooth decay. McCollum prescribes such a diet as a sure way to prevent cavities, not because the high-fat diet provides protective vitamins, but because fats “coat the teeth” and thus protect them against bacteria! He also asserts, without evidence, that chewing helps strengthen the teeth. The article provides a good example of how even leading scientists have difficulty determining cause and effect. McCollum was a contemporary of Dr. Price. The article was published in Nature, January 25, 1941, Volume 147, pages 104-108.

The carious lesion in a tooth is caused by acid decomposition of the enamel, and afterwards the dentine, associated with proteolytic destruction of the organic substance of the tooth. Caries of the teeth is restricted to man and other animals which eat liberally of carbohydrate-containing foods. Carnivorous man and animals do not suffer from this disease. Dental caries does not attack the surfaces of teeth indiscriminately, but occurs only at such sites as favour the lodgment of food residues, as in pits or fissures, or on surfaces of the enamel which harbor mucinous plaques. In such sites acid is formed by fermentation of carbohydrate by micro-organisms, and is protected against being washed away by saliva or by neutralization by salivary alkalinity.

Throughout the Americas and Europe,

and in most other temperate or torrid parts of the world, almost everyone eats liberally of carbohydrates, so the pabulum for feeding micro-organisms of every kind associated with fermentations is present in abundance at times in every mouth. Yet there is a great variation in the susceptibility of different people to dental caries. Numerous investigations have been devoted to attempts to discover why this great variation exists. Bunting and his associates, and Fosdick and his associates, have been foremost in studies of the microbiology of the oral cavity and its relation to caries of the teeth. A number of distinguished investigators have studied various aspects of the relation of the diet to susceptibility to this almost universal human affliction. I shall limit what I have to say to the nutritional aspects of this problem.

TOOTH STRUCTURE IN RELATION TO DENTAL CARIES

There is almost general agreement that potentially carious areas can be detected by a careful examination of the surfaces of the teeth. Dr. Thaddeus Hyatt, during his long tenure as chief of the dental clinic of the home office of the Metropolitan Life Insurance Company, directed his staff to explore the enamel surfaces thoroughly with a fine tine and when pits were found these were drilled and filled and the surfaces polished, thus eradicating potential food traps, or areas to produce later carious cavities. This system of caries prevention is known as prophylactic odontotomy, and has been found effective by others as a means of preventing the disease. It is fully established, therefore, that developmental defects in the enamel may predispose teeth to decay.

Caries of the teeth is restricted to man and other animals which eat liberally of carbohydrate-containing foods.

FAULTY NUTRITION AND DEFECTIVE TOOTH STRUCTURE

Experimental work with animals has shown clearly several ways in which dietary deficiencies during the period of tooth development can impair tooth structure. One of these is vitamin A deficiency. In deficiency of this nutrient the epithelia, no matter how they are specialized, as in mucous membranes, glandular secreting structures, and skin, suffer changes in structure and in loss of physiological function. Keratinization and desquamation of epithelia find their counterpart in the enamel-forming organ of the developing tooth, in changes in structure and partial or complete loss of function. The enamel-forming organ is of epithelial origin, being derived from embryonic gum tissue. Each cell of this organ secretes calcium, phosphate, fluoride, magnesium, and carbonate ions in such a way as to cause them to combine and deposit in the form of tenuous enamel prisms. These prisms form a mosaic, which, in the normal tooth, is of great perfection. When, owing to vitamin A deficiency, the enamel-forming cells are injured, prisms which are less dense than normal, or incomplete as to length, and imperfectly fitted together, form defective enamel. In the milder grades of this type there are pits in the enamel. In more severe grades of injury, the surface of the enamel of the greater part of the whole of the tooth may be rough, the enamel thin and deficient in hardness. This is the hypoplastic tooth.

A second situation which may cause defective enameling of the teeth is that seen in the disturbance of calcium and phosphate metabolism seen in the ricketic state. When the diet is complete as regards vitamin A and all other factors which are concerned with the promotion of healthy development, except vitamin D, the enamel-forming organ may be normal in every way, but be unable to withdraw from the blood the necessary structural materials for the formation of normal enamel. In rickets the concentration of phosphate ions in the blood falls below normal, and this interferes with the formation of sound enamel because the solution from which the cells derive their substances is too dilute.

Defects of enamel having their origin in disturbance of calcium and phosphorus metabolism have been most thoroughly studied by

Lady Mellanby. She drew the conclusion from her observations that deficiency of vitamin D is of primary significance in predisposing teeth to caries susceptibility. The phosphate ion of the blood is maintained at normal concentration by the provision of this vitamin and, in addition to preventing defective bone growth, likewise has an important role in safeguarding the developing teeth against defects of structure. Lady Mellanby reported extensive experiments with children in Sheffield and Birmingham, all of whom were fed alike. To groups of these she gave generous prophylactic doses of vitamin D over a considerable period, and found that the incidence of dental caries was much lower in these groups than in the controls not receiving the vitamin. She expressed the belief that a diet highly favourable to normal calcification of bones and teeth could in considerable measure lessen the incidence of tooth decay.

McBeath, of New York, has carried out experimental studies with large numbers of school children over a period of several years, along the lines laid down by Lady Mellanby. He finds that there is a seasonal incidence of dental caries, the highest incidence of new cavities occurring in late winter and spring, and the lowest in summer and autumn. These observations he correlates with the amount of ultra-violet light which the children receive at different seasons. He further found that when liberal daily doses of vitamin D were given children during the colder months, the seasonal curve of incidence is flattened out, the incidence during the months of low sunshine being closely similar to that of summer and autumn. This type of experiment places vitamin D, for which suitable doses of ultra-violet light is the equivalent, in the position of playing a significant part in influencing the susceptibility of the individual to dental caries.

It is difficult to see how vitamin D can protect the teeth against decay merely by maintaining the body in a state favourable to calcification. Caries of the teeth occurs as the result of highly localized processes. In an area of stagnating food residues, acid is formed and protected against removal or neutralization, and is able to act more or less continuously in dissolving enamel. There appears to be no possible mechanism for resistance to acid erosion by enamel other than

When, owing to vitamin A deficiency, the enamel-forming cells are injured, prisms which are less dense than normal, or incomplete as to length, and imperfectly fitted together, form defective enamel.

its density, which can be of but minor importance since the most perfect enamel is dissolved by acid when the pH reaches about 4.6, and the quality of enamel is not modified by any known agency after it is once laid down. If it is confirmed that sufficient ultra-violet light or if vitamin D favourably influences the body in its power to resist dental caries, it would seem that we must seek for an explanation in some effect upon the immunological mechanisms, which are of a nature to suppress the growth or functions of the microbial flora ordinarily associated with acid formation in the mouth. This might be exercised through the saliva or mucus, or other agency possessed by the epithelia. There do not appear to have been any studies recorded to test whether ultra-violet rays or vitamin D administration modify the oral flora.

That an immunity to dental caries may be artificially induced is suggested by the success of Bunting and Jay in preparing a vaccine from cultures of *Lactobacillus acidophilus* which they isolated from carious cavities. Upon intradermal inoculation of caries-susceptible persons there was a cutaneous reaction in nearly all cases, and when the test was applied to a series of caries-immune subjects, the skin reaction was almost always negative. There are in the population a considerable number of people who apparently eat as wide a variety as do most of us, and certainly eat freely of some form of carbohydrate, yet are caries-immune or nearly so. Some are immune to caries of the teeth during a period of years and then become susceptible. There seems much reason to attribute such immunity to a systemic condition of some kind, and the most plausible explanation would seem to be an immunological one—the offending organisms find the mouth environment unfavourable because of the presence of something detrimental, and this something seems to be the product of the living tissues or glands accessory to the mouth.

EFFECTS OF EATING SUGAR ON CARIES INCIDENCE

The eating of sugar and sweets has long been popularly believed to cause the teeth to decay. This view is supported by the observations of Bunting and his co-workers, who, by means of dietary control, reduced the incidence of dental

caries in an orphanage to a very low level. Upon permitting a group of children, whose mouths were free or nearly so of *Lactobacillus acidophilus*, and who were classed as caries-immune, to eat about three pounds of candy per week, they found that they soon became caries-susceptible, and that the oral environment returned to the caries-producing type.

It is difficult to explain why eating sugar should be more likely to induce dental caries than cooked starch. Sugar is so easily soluble that it tends to be swallowed promptly as fresh quantities of saliva are secreted. Cooked starch, on the other hand, is pasty and is easily lodged in pits and fissures. Mixed with saliva and acid-forming organisms, starch would continuously undergo diastatic conversion into maltose, a fermentable sugar, thus furnishing an uninterrupted supply of nutriment for acid formation. Yet it is concluded by Bunting that this is not the case. Human experience confirms the findings of Bunting that people may eat freely of starchy foods and yet remain free from dental caries, or nearly so. An example are the people of the Island of Tristan da Cunha, who consume potatoes as a staple food. The primitive Pacific Islanders, before the era of exploration, ate largely of starchy foods, yet they were almost free from dental caries. Sugar, therefore, seems on the basis of scientific observations now available, to be far more of a menace to the health of the teeth than are the starchy foods.

A dietary study of outstanding interest in relation to the caries problem was reported in 1926 and 1928 by Bodd and Drain, of the University of Iowa. They made repeated routine examinations of the teeth of the patients in the pediatric clinic over a period of some years, and encountered many teeth which had large cavities, which ordinarily, would have an area of softened dentine surrounding the zone of destruction, but in these patients were found to have uncommonly dense and hard dentine walling off the cavities and arresting the progress of the carious processes. These cases of arrested caries, in which a secondary deposit of dentine had occurred, which formed an effective barrier against further invasion of the tooth, were found to be without exception diabetic patients. The arrest of dental caries appeared to have occurred

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as the result of their having been restricted to the low-carbohydrate high-fat type of diet now generally used by diabetic patients. This type of diet does not seem to have been further studied as a means of controlling dental caries, and is worthy of most careful consideration. If replacement of a considerable fraction of the carbohydrate moiety in our daily diets by fat will protect the population in great measure against dental caries, the fact should be made known, and such a diet recommended for non-diabetics.

But human experience appears to afford fairly numerous examples of peoples who in great measure escaped the ravages of dental caries, who did not eat low-carbohydrate high-fat diets. Chinese students in America appear to have a lower incidence of caries of the teeth than do persons of similar ages who have grown up in America. I have been repeatedly told by Chinese students that they experienced markedly increased incidence of tooth decay after spending a few years in the United States. The great majority of Chinese people have from very early times eaten freely of starch-rich vegetable foods. They eat various vegetable foods which have a detergent action on the teeth, which may be a factor of considerable importance in preventing stagnation areas.

Experimental studies on the effects of deficiency of ascorbic acid (vitamin C) on the teeth indicate that the dentine-forming organ, the odontoblastic membrane, is peculiarly susceptible to injury in this deficiency state. The odontoblastic membrane lines the pulp cavity, and from its cell filaments (Tomes fibrils) permeate the dentinal tubules, which permeate the dentine to the base of the enamel. It seems certain that it is through the functioning of these fibrils that secondary dentine can be laid down near the outer border of dentine whenever irritation arises. This is a peculiar repair process, which, when the state of nutrition is near the optimum for calcification, can be called into being so as to arrest caries by a walling-off process. In this respect the perfection of function of the odontoblasts, which is influenced profoundly by the ascorbic acid supply, becomes an agency in the prevention of the extension of dental caries, but not of its incidence.

The fact which has been thoroughly estab-

lished by the work of Bunting with institutional groups of children, all of whom were provided with the same food, is that there are individuals in whose mouths *Lactobacillus acidophilus* grows profusely, and forms the principal flora, whereas the mouths of other individuals contain principally organisms of other types. This would seem to demonstrate that the character of the oral flora depends greatly on conditions other than the character of the food eaten day by day, especially when a mixed diet, affording a fairly wide variety, is eaten. The most plausible explanation for the observed facts would seem to be found in the humoral defence mechanisms of the mucous surfaces, the mucous secretions of the saliva. We have one outstanding example of the relation between the state of nutrition and the character of the oral flora. At one time it seemed that Chittenden and associates at Yale University, and also Goldberger, in Washington, were dealing with the same state of malnutrition in their experimental dogs, both believing that the condition produced by their different faulty diets was the analogue of human pellagra. At Yale the dogs were cured by the administration of butter or boiled carrots, both of which are sources of vitamin A. At Washington what appeared to be the same disease could not be cured by butter or carrots, but responded well to yeast administration, which did the dogs no good. In 1937 Smith and his co-workers at Duke University repeated both experiments and found that in the one case the dogs were in a severe state of vitamin A deficiency, and in the other of nicotinic acid deficiency. In both cases the earlier experiments had depended greatly on the mouth condition for making their diagnosis. The oral flora in both groups of animals was of the fusospirochaetal type seen in Vincent's angina. This is an abnormal and pathological mouth flora, and overgrows the oral cavity when the tissues are debilitated. It appeared in the dogs as the result of two quite distinct types of malnutritional deficiency states. In these two conditions the overgrowth of the mouth by a pathological flora would seem to be best explained on the basis of a lack of some humoral factor or factors which the normal mouth contains, and which serves to suppress the growth of certain abnormal types of micro-organisms. Perhaps the decided

differences in the oral cultures found in many individuals may be accounted for on the same basis, namely, the failure of the oral structures to produce some humoral factor of immunological significance.

The recorded experimental data seem to warrant the acceptance of the following conclusions: If the nutrition of the individual is optimal during the development period of the teeth, their structure will be safeguarded, and freedom from structural defects such as pits, fissures, hypoplastic enamel, may be expected. It would seem that dense, thick, hard enamel must afford some degree of protection against dental caries.

A state of optimum nutrition appears to afford marked protection against dental caries. It seems certain that such protection is in considerable measure due to some property of the mucous secretions or of the saliva or both, which tends to suppress the growth or functions of microorganisms whose presence in large numbers would be inimical to the health of the teeth.

Subsistence throughout life on a strictly carnivorous diet will prevent dental caries. This would be impractical in most parts of the world, and if practicable, would be less satisfying than is a mixed diet. The presence of considerable carbohydrate in the diet is necessary for the de-

velopment of carious teeth. There seems to be good evidence in support of the view that the regular consumption of a diet in which all the essential nutrients are present in adequate amounts, and in which the ratio of fatty acids to total carbohydrates (including the sugar which may arise from protein and glycerol) is not less than 1.5:1, prevents dental caries. This is equivalent to saying that a diet suitable for the diabetic is so constituted as to afford protection against dental caries, and even makes possible the arrest of the carious process in open cavities. This protective action of excessive fat in the diet may possibly be due to greasing the tooth surface and the cavity surface, thus waterproofing it and preventing access of water-soluble acids (for example, lactic acid) to the enamel surface.

There seems to be good evidence that the elimination of sugar from the diet, and the provision of carbohydrate in the form of starch, affords a less favourable oral medium for the development of acid-forming organisms, and so protects the teeth against acid decomposition.

It appears probable that the provision of an abundance of vitamin D, either taken directly, or derived from the action of ultra-violet rays on the skin, exerts a favourable action on the immunological mechanisms in the oral secretions or on the epithelia of the mouth, and makes for preventing the growth of excessive numbers of acid-forming organisms.

The dentist can supplement the protection against dental caries which right eating can give, by early eradication of potential sites of decay.

The food should always supply certain things which require vigorous chewing, since teeth which are not exercised do not retain optimum health. Every meal should end with some food such as raw fruit or a raw vegetable, which requires thorough mastication, both because of the exercise afforded the teeth, and for the detergent effect of chewing foods which do not have a tendency to adhere to the enamel surface. ☺☺

THE MARK BAKER FAMILY

In 2011 Mark Baker, a Michigan farmer and military veteran, began a fierce battle with the Department of Natural Resources (DNR) over his right to raise heritage pigs. They claimed his pigs were feral, even though these “dangerous” pigs were kept in pens, and this fight cost him thousands of dollars. The charges were dropped ten days prior to trial before the whole story could come out. At the same time, restaurant clients turned their back on the Bakers out of fear of the government’s power. At least ten times in the past year Mark has had “customers” call, acting interested in buying large numbers of pigs; they’d chat with him a while to get information and then abruptly call back a week later to cancel, so then he’d have to continue to buy expensive feed for all those animals that were ready for market. “Our youngest is four years old and this is all he’s ever known. Our kids have gotten serious briefings on strangers and about people possibly coming into the house. I think they figure, ‘If we can get to him mentally, then maybe he’ll quit.’ This is no way to live, we just want to be farmers.”



Now, also due to government pressure, he can no longer get farm insurance! These mind games and dirty tricks are causing intense financial and emotional pressure on Mark, his wife Jill, and their eight kids.

HOW YOU CAN HELP: You can enjoy high quality, delicious, pasture-raised, heritage pork, especially with the holidays right around the corner! Go to ThePerfectPig.net, and there you'll find prices and available cuts (for whole or halves use the contact form at that page), and they can ship anywhere in the U.S. Thank you! For more about the Baker family's ordeal, read: kellythekitchenkop.com/pushing-a-small-farmer-out-of-business/.

In His Footsteps

A WAPF VISIT TO KENYA

By Hilda Gore, Washington, DC Chapter Leader

In many respects, all who embrace the WAPF principles are walking in Dr. Price's footsteps. We believe that natural, unprocessed foods are nourishing and life-giving. We believe that the wisdom from traditional diets and ancient cultures should inform our food and lifestyle choices today. We have been persuaded by Dr. Price's research and then have had the information validated by our own experience.

What I never expected is that I would literally get to walk in Dr. Price's footsteps by travelling to Kenya last August. Dickson Gisa, a Maasai warrior, got the ball rolling when he contacted WAPF and said, "Please send someone over. We are all getting sick."

He continued, "I have diabetes. My wife has asthma." The Maasai, of course, are traditionally a strong, virile, tall, healthy people. When Dickson came upon WAPF materials, they resonated with him. He'd witnessed, first hand, how sickness and chronic illnesses had come to his community as their diet westernized. Dickson's call set our trip into motion. The Foundation advertised the trip in an issue of the *Wise Traditions* journal and many members responded. I was the first to raise my hand; Mary Gercke, from Illinois, was the second. And off we went!

Well, it wasn't quite that easy. We spent months in preparation—putting together presentations, pursuing connections in Kenya, and arranging speaking engagements wherever we had an entryway. We planned on spending time in Nairobi, and, of course, in Dickson's village of Matapato (south of Nairobi, near the border

with Tanzania). Once we arrived, we were able to speak to teachers at Rosemary Christian Academy, staff at the Summer Institute of Linguistics, a crowd at the Permaculture Research Institute, and more. We spoke with leaders in a Kenyan Rotary Group and we even ended up being interviewed on a local radio station! Our time in Dickson's village, however, was where we really got to know people the best. In addition to making presentations to the women in the village and the youth group, we also got to speak with villagers one-on-one. One evening, we had a long conversation with Dickson himself about his tribe's traditional diet and the changes

he's observed over time. Below are excerpts from our conversation.

THE TRADITIONAL KENYAN DIET

Dickson told us what he would eat as a child. "When I was young, as a child, maybe around five years up to ten years, we didn't have a lot to eat.

We were just fed with cow milk and cow blood. On Monday when we went to school, we'd just wake up early in the morning, get the milk from the cow, drink one cup, then go for the whole day. You don't need lunch. You don't need anything. Unless if you go for a break, maybe you can get some wild fruits.

"Because when we were in school, on weekend, you can just get some wild fruits, you put them in the *shuka* [cloth bag], you take them to school and you do trading. Some come with milk, some come with the honey, and some of them can bring also meat. So if I have fruit, I can trade, I can have a bite of meat. When you come back home, you just take the same meal, that is,



Mary Gercke, Hilda Gore and Dickson Gisa



milk. But on Saturdays, milk is mixed with blood from the cow. But you don't have to kill the cow. You can just get it from the artery. The cow just continues with its life. Get the blood mixed with milk. That is the meal for Saturday and Sunday. But on Monday, it's milk.

"The children were very healthy. Not only the children; even the old men, because they were also feeding on the milk. We didn't have any other meal. Just milk, meat, and the meat is not every day."

He told us how colostrum was used for healing digestive problems. "I remember also, when the cow gives birth to a calf, you know, the first milk is very strong. So that one is used for 'washing the stomach.' So if the children had the worms, they used that cow's milk to get the worms [out] from their stomach. But right now, if you try, when the cow is having a new baby,

you try to tell the children to take the milk, they say, 'No, this is for dogs and cats.' So, it's really changing."

He explained how his family would preserve meat. "And I remember when my father slaughtered a goat. We could keep the meat for maybe one week. And they don't cook the meat, they just cut them into small pieces, they put in the sand. They dry them. That meat can last even one month and we mixed it with fat. So when you come, you are given a mixture of fat and meat. It's like a mixture of *ugali* [corn meal dish] and meat, but it is fat. It is fat and meat. And it can last for a long time. Not refrigerated, just out to dry. I actually have a container that sometimes when my children come, I like making for them. I make it for holidays. They really like that. They like that fat. You put the fat and you put the meat and it can be a meal for a whole month or even

But on Saturdays, milk is mixed with blood from the cow.

INDUSTRIAL FOOD IN KENYA

In Kenya, the influence of the West on the diet is evident at every turn. Fast food restaurants are sprinkled liberally throughout the city of Nairobi. "It's considered posh to be seen at KFC or Pizza Inn," one young professional confessed.

Growth in fast food shops and in soda products is clearly by design. Fast food companies are losing business in the U.S., as is the soda industry. The Coca-Cola Company's sales have declined for five consecutive years. Consequently, they have initiated an aggressive marketing campaign focused on Africa.

Their goal is evidently to get in every mom-and-pop shop (or *duka*) that they can possibly find (or build). But they are not content with selling the products inside. The company offers to paint the exterior of the *dukas* in exchange for displaying their logo prominently.

The "share a Coke with a friend" campaign is also in full force. In the small village of Matapato, we attended a church celebration, and sodas were passed out to all attendees.

Advertising does not end with sodas, though. Margarine and partially hydrogenated oils are also pushed on the people. One ad encourages Kenyans to add margarine to a traditional side corn meal dish, *ugali*. Another promises that vegetable oils contribute to "happy, healthy living."

For one-stop shopping, Kenya has its own superstore, Nakumatt. It's like a

Wal-Mart, of sorts. It is filled with juices, chips, candies—everything showcased and designed to appeal to those who want to emulate the West. As one Kenyan put it, "Kenya is a hub, a gateway [for] the good and the bad." We are pleased that WAPF is taking steps to be an influence for good.



Coca-Cola offers to paint the *dukas*—local mom-and-pop shops—in exchange for displaying advertising for the soft drink company.



Billboard ad urges Kenyans to add Blue Band margarine to *ugali*, their traditional corn side dish.

I TOOK A TRIP TO AFRICA

By Mary Gercke, RN, BNS

I took a trip to Africa. I was called by the urge to do good, to see diverse ways of living, and simply to make amends. It was quite serendipitous really. One might even say all the stars had aligned. Though I had never thought to go to Africa, I greatly believed in the mission on which I would embark. I have spent the last six years reinventing my diet through WAPF principles, and it has drastically changed my family life, our health and my career. I have always been compelled to share knowledge, especially something that so dramatically rescued the health of my son.

I had been hoping for a way to share the verity of what Dr. Price discovered, but in my community found few who would listen. In Central Illinois, where I live, corn and soy are king. I wondered whether this trip to Africa might be a chance to encounter a more receptive audience. A bit naive about what the trip would take, I jumped at the chance to walk in Weston Price's footsteps.

My day of departure arrived, and I found myself on a plane with a stranger. Hilda Gore was a bit closer to this storyline than I was and had been the first to volunteer to travel to this foreign land. As she shared her part in this adventure I learned that she was just the right companion, possessing strength where I was lacking. We became good friends over the next eighteen days of sharing our stories and uniting our hearts with a people neither of us had before encountered. We had responded to the call of a Maasai warrior who heard of Weston Price through a friend. He sent out a plea to the Foundation saying, "Send someone because we are all getting sick."

When he traveled the world, Weston Price saw the beginnings of what would become a downward spiral. He compared the faces and health of those still eating their traditional diets with those who had been modernized. The poor health of those modern Africans was a result of industrial influence. When he traveled there, the number of native people holding to their traditions was many. That was not what we found. The permeation of industrial influence was widespread, and chronic disease an epidemic. In a way I saw this as my influence. I could not shake the feeling that in order to have any credibility, I would have to start with a confession. I had not personally brought poor dietary practices to the Maasai tribe or to any other Kenyan. But I was a member of the industrial world, with all that implies. The history of those from so-called developed nations coming to the so-called third world is one muddled with not-so-good intentions. Much has been done in the name of progress and even religion. These were things that I could not ignore. That people in Africa were suffering from so much chronic disease was due at least in part to our influence.

Another thought that plagued me about taking this message to the Kenyan people was that many we would speak to have limited resources. I knew from my own transition to healthy eating that I struggled with how to acquire and afford the foods that would nourish my family. In my own journey I have become more and more a part of producing my own food. I had to learn so much having grown up on supermarket fare. To tell people that to be healthy they need to eat healthy, but not give them any tools with which to do so seems disempowering. I knew I needed to bring a message that would give hope. As I positioned myself to include sustainable farming in our talks, a divine coincidence occurred. I was introduced to a Kenyan farmer, Joseph. He is a permaculturist who started PRI-Kenya (Permaculture Research Institute). Joseph and I had obtained our permaculture design certifications through the same organization, and Hilda and I agreed to share the WAPF principles with his institute. He in turn agreed to send one of his permaculturists to share his knowledge with the Maasai. This inclusion was, in my mind, essential to bringing hope instead of despair.

Our eighteen days in Kenya were packed with many talks to diverse groups of people. We took the message of Weston A. Price back to the Maasai, to foreign missionary families and to the professionals and academics in the capital of Nairobi. While our audiences varied, the receptivity to the message did not—almost everyone ate it up.

Kenya is one of Africa's wealthiest nations. As such, it is also one of the most "advanced." Advancement has come at a high cost. I was shocked at the chronic diseases now so prevalent. I had thought that the prevalence of diseases in Kenya would be lagging behind us. Sadly, it seems they are very familiar with cancer, diabetes and heart disease as well as newer diseases like autism and autoimmune dysfunction.

We went to Kenya to share our stories of illness and recovery. I told the story of my son's battle and his tremendous progress. Over six years ago, my son was diagnosed with autism. As a nurse, and knowing medicine had no real answers, I went looking. Like a mama bear, I ripped through every bit of information I could find. My desperate search led me to the Weston A. Price Foundation. I explained to all my audiences how changing my son's diet had drastically improved his health. I shared the principles and how Price had visited Africa many years ago. I thanked them for the wisdom of their ancestors and their traditions. The heart of the message, though, was "Go back!" I urged everyone I spoke with not to follow the ways of the industrial world. I confessed how we had been wrong; I confessed the sorry state of health in America, the corruption of the medical system, and the horrendous state of our food system. I confessed how our production methods denature food and cause chronic disease. I confessed how our companies care more about shelf

two months.”

Dickson touched on how they would preserve their health and which foods they would give to pregnant women. “There was no typhoid, no asthma, no allergy. You use herbs, sometimes you mix them. When someone is coughing you mix honey with another herb. Then you get well.

The nursing mothers, they didn’t have to go to the clinic to get their delivery. They don’t have to go to the clinic every month to get their vaccination. No, they just get their babies at home. Their babies are healthy. And the first thing that the woman is given after delivery is fat. When she has labor

pains, she is given fat. They believe if she takes the fat it will ease the child to come softly. All these things were cow fat and sheep fat.

“When the woman is pregnant, she did not go buy shoes for the child, (or) just buy the towels for the child. The first thing to have in the house

is fat because when she’s having any complications, the first thing she has to take is fat, melted into a sort of a liquid, then she can take. Even sometimes if you get heartburn, even myself if I get heartburn, have two spoons of fat, to remove the heartburn. I don’t chew the antacid. No, the fat is direct from the sheep, from the cow.”



A Maasai warrior drinks a bowl of fresh cow's blood.

CHANGING WAYS

He talked about children today and their disinterest in raw milk. “Now when there is plenty of milk, children don’t want to feed on milk alone. If you give them, they just say, ‘Oh, maybe I can just take a cup of milk with *ugali*.’

They don’t want to. But

I myself right now, I cannot sleep without taking a cup of milk. My wife, she knows that. Every day, I have to take a cup of milk. I cannot feel that I have eaten anything without having a cup of milk. But our children, Camila (his youngest daughter, age 7), if you tell her just to drink milk

And the first thing that the woman is given after delivery is fat. When she has labor pains, she is given fat. They believe if she takes the fat it will ease the child to come softly.

life than life itself. This message was not lost on those in the city of Nairobi, who are farther removed from their traditional ways. Many have not forgotten how they themselves or people they know grew up on traditional Kenyan foods. They see the connection that my audience at home could not see.

The tribal people we visited saw the connection as well. They struggle with drought and fewer and fewer grasslands for their herds. The animals have overgrazed, leaving sparse vegetation and increasing soil erosion. I was delighted to have included the message of permaculture. I believe it can restore the lands there, and, indeed, there seems to be a convergence of WAPF and permaculture. Along with nutritional information, the people of Kenya need the skills and training to bring it to pass. PRI-Kenya is doing this great work and gaining momentum throughout Kenya.

For me this experience was the trip of a lifetime. As our Maasai friend told us, “You will teach, and you will learn.” And so we did. I learned that, just as in America, the issues surrounding how we nourish ourselves are complex, and the misinformation runs deep, but there is so much hope. Every time I think on the trip, I gain more wisdom from it. I believe that the audience in Kenya was receptive. They were seeking answers, and they easily understood and were poised for action. What a blessing to be a part of taking the message back to its roots.

Mary Gercke, RN, BSN, while maintaining her nursing license, seeks to acquire and spread wisdom merging nursing, farming, and culinary arts. She obtained her permaculture certification through the Permaculture Research Institute and has farmed for the past five years. Her passion and advocacy for local healthy food inspired her to joining the fight with farmers across the U.S. for the right to provide raw milk privately. Mary promotes local sustainable agriculture and food systems through community organization. She has represented the Weston A. Price Foundation at the AutismOne Conference and has spoken on traditional nutrition at the Growing Power International Farming conference. Her true passion lies in helping others transform their dietary practices. She also teaches classes focused on fermentation techniques and their health benefits.

and go to school, she will not. She'll just say she is sick and she doesn't want to go to school because she's angry."

He spoke of natural remedies and aids versus unnatural. "When God did the creation in the beginning, everything He created, He said it is good and is for our use. So now, we are trying to make other things which God did not create. We are creating our own things: we are processing food, we are processing fat. We are processing...so many things we are making, but those things they are harmful to us. That is why there are so many diseases.

"Those diseases were not there before. I remember when we had, during the rainy season, lots of scabies for the children. But do you know what we use to treat scabies? Just only the urine of the cow. All the children were, washed early in the morning, they were told to go get the urine from the cow. You would wash your body with the urine of the cow. Then you get well.

"So now if someone gets scabies, you go to the chemist (pharmacist), get chemicals, apply on the body. And...so many things are happening, because we are fighting what God has created for us, what God has said is good for us, we are going our own ways. When we pretend that we are wise, even God, and make our own things. I think we're not right. That's why we're having lots of diseases. I really concur with you, even with the Weston A. Price Foundation, that traditional diets are really good for

us. So, it's time to try to reflect our minds and go back to the beginning and just say what God created for us is good for us."

How pleased we were to hear these words! Frankly, everywhere we went there was a receptivity to the message, which was very encouraging. And, to top it all off, as we prepared to leave Matapato, Dickson shared the following.

"We pray that God will open doors for us to meet again. It was a joy and blessing to have you visit us. We feel honored to host you. Your testimonies have strengthened our faith. The talks we had with the community women and youth were fruitful and we pray that the Weston Price Foundation will consider to send you in the future. We enjoyed our time together and happy to meet

you all. *Asante sana!* (Thank you very much!)"



Hilda Labrada Gore is the Washington, DC chapter leader and is the host and producer of the Wise Traditions podcast. She is a fitness professional and certified health coach.



The elders listen to the WAPF message.

SANKAU OLE SIROTE, A MAASAI CENTENARIAN

In the village of Matapato, Sankau Ole Sirote, age one hundred, talked to us about growing up in Kenya. "During my youth, there was no school so my life was just to go and handle the cattle. That was my daily activity—getting the cows and going hunting. When we were *morans* (young warriors in training), we would hunt lion, rhino, elephant and buffalos. We would just hunt for fun. We would not really eat the meat of the lion or elephant or rhino. But we could eat the animals like the giraffe and the eland. Mostly we ate our own livestock.

"When we were children, up to the age of youth, our diets were milk, fat, meat and also sometimes honey. There was a lot of rain. Wild fruits were available and the milk was plenty. And the cows also were healthy, so they can make milk. So everything, when we were young, everything was just healthy. There was no one who was sick. We were all very healthy."

We asked what the key is to a healthy diet. "Start with milk exclusive, or cream made from milk. Just that. That is it. For up to seven years (of age)."



We asked about the difference in diet and health between then and now. "Even food they have changed, because [now] you have to buy food. Everything you have to buy from the shop. And during my time, we would depend on what is coming from the livestock. But now you have to go and buy."

"There are so many changes. People are getting sick. There are diseases which I cannot even describe. There are a lot of diseases coming, but before, as I said, there were no diseases. During my days, there were no injections but right now, every time, they just say the people need to be vaccinated because a disease is coming. People need to be injected. But when I was a young man, I never had an injection."

His final comments? "I am thankful to God that I had opportunity to do good while I was in this world. I am alive because of God."

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All Thumbs Book Reviews



***Death by Calcium:
Proof of the Toxic Effects of
Dairy and Calcium Supplements***
Thomas E. Levy, MD, JD
Medfox Publishing

Since the 1950s recommendations for calcium intake for U.S. citizens have continued to climb, and are currently set at 1000 milligrams (mg) for men and women fifty-one to seventy years of age, and more for those over seventy. These amounts are most achievable with supplements.

Despite these recommendations, the results from a number of studies conducted between 1978 and 2012 show that bone fractures are not caused by a lack of calcium, that increasing calcium intake does not prevent fractures, and that supplements are of little value. The focus of current studies turns to the risks of calcium supplementation, which include kidney stones, digestive problems, cardiovascular-related death in men, stroke risk, calcification found in cancerous tumors and more.

Dr. Thomas Levy examines this very topic in his latest book, *Death by Calcium*, in which he disputes the long-standing beliefs that osteoporosis is caused by a deficiency of calcium and that arteriosclerosis is caused by high levels of cholesterol. Both conditions, he claims, are in fact caused by high levels of calcium. It is not calcium, Dr. Levy claims, but rather vitamin C that is the “foundation and cornerstone of strong bones,” and osteoporosis is a kind of chronic “focal scurvy” caused by lack of vitamin C. Osteoporosis is caused by oxidative stress, he says, and vitamin C is an antioxidant needed in sufficient amounts to combat that stress. A large part of the book discusses vitamin C: how to take it, how to administer it, varieties of vitamin C, and why it is a superior nutrient. However, his recommendations include only supplemental forms of vitamin C, and there is no discussion of natural forms.

Vitamin C is essential for synthesis of collagen, which makes up 90 percent of the organic matrix of the bone. But in studies where vitamin C supplements are given to prevent or heal fractures or prevent bone loss, the results are not consistent: some studies show a benefit while others do not.

Dr. Levy recommends 6,000-15,000 mg of vitamin C of any kind per day in divided doses, or, in the case of those who may experience watery diarrhea from taking those doses, 2,000 mg per day of liposomal vitamin C, which is generally well-tolerated. He also recommends supplementing with vitamin D₃ and vitamin K₂ which direct calcium into the bones and away from the heart and other organs.

Dr. Levy pays special heed to vitamin K₂, and rightfully so. Research shows that calcification can be reversed in blood vessels, kidney stones and coronary arteries with appropriate intake of vitamin K₂, specifically the MK-4 form. He also recommends that magnesium intake from supplements be sufficient and that magnesium glycinate be taken with every serving of dairy food to combat its purported artery-clogging properties. Dr. Levy regards magnesium as a calcium channel blocker. Recent research shows an association between low serum magnesium and coronary artery calcification.

In his book Dr. Levy argues that calcium supplements are not only unnecessary but are dangerous and can cause heart disease. Because dairy foods are high in calcium he considers that the calcium in milk functions in the same way as calcium supplements: it is extraneous and unnecessary. Calcium supplements and dairy foods are both considered toxic by Dr. Levy, statements that appear boldly on the cover of his book.

We know right off the bat that the author of this book is no fan of the milk mustache and the “milk does a body good” advertising campaigns, which aim to persuade Americans to drink more commercial pasteurized milk produced from animals given antibiotics and hormones. But, as

Milk is a healthy traditional food in many cultures, and animal herding gave early peoples a distinct survival advantage.

All Thumbs Book Reviews

it turns out, he is not a fan of raw milk either, even though he does acknowledge that raw milk has “significantly less negative impact on your health than pasteurized, processed milks with added vitamin D.” He warns us not to drink milk as a regular beverage and to indulge in cheese, yogurt, and sour cream only sparingly.

Dr. Levy believes that we “outgrow” our need for milk. Except for cheese and yogurt, there is “no room in a healthy diet for milk as a beverage, and no place for cow’s milk in the diet of a health-seeking individual.” He applies that logic to children as well but concedes that milk is “less negative for kids than for older folks because (in kids) skeletal growth is still using calcium from the diet.” Milk just has too much calcium in it, he says, and was meant for calves which have much bigger bones than humans.

Curiously, the studies he references to build his argument against calcium and dairy foods apply only to calcium supplementation and not to milk products. There is not one study in the book relating dairy foods to excess calcium or adverse events. In the entire book of over four hundred pages, there are approximately ten pages devoted to dietary calcium, while perhaps only five pages mention dairy foods or milk. In fact, the terms “dairy” and “milk” do not even appear in the index of the book.

We know that pastured dairy products in particular are also a good source of fats, cholesterol, fat-soluble vitamins A, D and K₂ as well as other vitamins and minerals. Dairy foods are the primary source of the natural *trans*-fat conjugated linoleic acid (CLA), which may have anti-cancer and other beneficial properties. Raw milk contains built-in protective immunologic systems, enzymes, hormones, mucins, fibronectin, beneficial bacteria and other healthful substances all in one package.

Dr. Levy describes how excess calcium from supplements and dairy foods accumulates in cells, tissues and organs, a phenomenon called “ectopic calcification.” The real problem, he says,

is not a lack of calcium in the diet, but rather a “relocation” of calcium from the bones to other areas of the body where it does not belong, a scenario that concurs with current research. “You are 30 percent more likely to have a heart attack and up to 20 percent more likely to have a stroke if you take an extra 500 mg of calcium per day”—this is the consensus from a review of fifteen independent studies. If you take the recommended 1,400 mg per day, the risk of cardiovascular disease goes up 40 percent. And taking calcium with vitamin D together is also dangerous because more calcium is absorbed. “Calcium supplements with or without vitamin D modestly increase the risk of cardiovascular events, especially myocardial infarction.”

Maybe Dr. Levy’s writing style is a bit preachy and autocratic and less entertaining than that of other health writers. Perhaps he expects too much of us, strongly admonishing us to give up dairy foods, even raw dairy, with no suggestions on how to replace it, except to find other food sources of calcium such as nuts, seeds and fruits. Eliminating a beloved food is difficult to do and may be the lonely path of only those with the worst food allergies.

Most people who enjoy raw dairy products understand their health benefits. If our children were to give up good raw milk, what could they possibly drink that might be equivalent or better? Certainly soda or fruit juice, both highly problematic for children, teens and everybody else, are implicated in obesity. All would agree these have no place in a healthy diet. Furthermore, some of the oldest people in the world drink fermented milk into old age and it is considered one of the secrets of healthy aging. Recent scientific literature describes the positive effects of probiotic bacteria on calcium absorption. Raw milk contains natural probiotics as well as short-chain fats and butyric acid which positively affect bone mineral density. It seems Levy didn’t go far enough in his research before condemning milk consumption.

The remainder of Dr. Levy’s book is devoted to discussions of anti-oxidants, calcium channel blockers, hormones, detoxification and dental issues such as amalgams, root canals, and cavitations.

The book is mostly well-referenced with some real nuggets of wisdom regarding the dangers of calcium supplementation. But it is long (429 pages) and difficult to get through. Much of the information in this book was already presented in his other books. Can the condemnation of milk and dairy foods be justified? Milk is a healthy traditional food cultures, and animal herding gave early peoples a distinct survival advantage. Reading the book was a real “slog,” and I am not talking about the game of cricket here, but in keeping with the Merriam-Webster definition: “to keep doing something even though it is difficult or boring.” I give this book a thumbs down rating.

Review by Sylvia P. Onusic, PhD, CNS, LDN

All Thumbs Book Reviews



The Statin Disaster

David Brownstein, MD

Medical Alternatives Press

Dr. Brownstein takes a very logical and therefore unusual approach to analyzing the controversy surrounding statin (cholesterol-lowering) drugs: he looks at what the studies say. By contrast, many hang on what the so-called experts say. The problem with that latter tactic is that the purported experts say a lot of things that come from thin air and are supported neither by studies nor data. Others look for truth in what the news media present. It's still a little hard for me to believe so many haven't noticed the total lack of credibility of the media yet. If you value your life you especially don't want to take seriously anything they bandy about on the morning shows.

One must be very careful even when examining the conclusions of scientific studies. All of the major studies relating to statin drugs are examined in this book. It must be understood that content presented in the studies' abstracts or conclusions is not always in agreement with the studies' actual data. Many people rely on their doctors to elucidate the confusion for them. Because Dr. Brownstein is a medical doctor he has some interesting insights into a few of the shortcomings of the medical community. He has worked with many medical students and interns who have received some training in statistics. He regularly puts that training to the test and has found that most students fail. Without some basic statistical competence, all the studies or data in the world will remain unintelligible to you. For example, Dr. Brownstein explains the crucial difference between relative risk and absolute risk.

When two people in a treatment group die and three people in a placebo group die, the relative risk of dying is 50 percent greater for untreated people than for treated people (three is 50 percent greater than two). That number sounds significant, and advertisers and propa-

gandists love to play that game when promoting their favorite miracle drug. But if there are ten thousand people in each group, then two versus three deaths in ten thousand is in fact an insignificant difference in outcome. Therefore it is the *absolute* risk that you have to pay attention to when assessing study results.

Let's say you take a bright young medical student and give him many years of advanced education, followed by more years of internship and then more years of experience on the job. Now try to tell that matured doctor, steeped in all of his experience to date, that any part of what he learned along that protracted path is wrong. Ninety-nine percent of the time it won't go over well. Dr. Brownstein gave a detailed presentation on statin studies, the statistics and what they really mean to a large group of doctors. When those doctors were confronted with this information even by one of their own, they did not respond well. Dr. Brownstein had to back slowly out of the room, not making any sudden moves. Somehow he escaped with his life. I'm probably exaggerating. A little.

The studies actually show only a tiny benefit of statin drug use only among certain demographics. If these drugs were cheap, safe and had no side effects, they might be worth taking for that small population. Yet they are not cheap, not safe and have many serious side effects. It takes nearly a whole page of Dr. Brownstein's book to list the adverse effects of statin drugs. Adverse effects are often brushed aside as rare occurrences. They may happen to someone else, but not to you. Cognitive disorders may not sound very serious, especially if you have them, but one hundred percent of statin users experience them. If you feel the need to be a little more brain-dead, this could be the pill for you. Check with your doctor.

Most adults with diabetes now get a prescription for statins. Since it is well established that statin drugs increase the risk of diabetes, I can only speculate that they are prescribed in order

One hundred percent of statin users experience cognitive disorders.

All Thumbs Book Reviews

Doctoring Data: How to Sort out Medical Advice from Medical Nonsense
Dr. Malcolm Kendrick
Columbus Publishing Ltd, 2015

Dr. Kendrick lives in Cheshire, England, so his writing has a distinctly British flavor—blimey this and bloody that. I love that stuff. He covers all the usual statistical misinterpretation strategies perpetrated by data-doctorers with a great sense of humor. He comes up with an excellent illustration of how studies will often ask the wrong question and then inevitably get the wrong answer. In a typical cancer study you will have a treatment group and a control group. The question they ask is: does the treatment group have a higher or lower rate of cancer deaths compared to the control group which received no treatment or a placebo? That is the wrong question.

Why is that the wrong question? Suppose the treatment involves shoving patients off a very high cliff. It should be readily apparent to the careful reader that the treatment group will have a drastically lower rate of death from cancer. While this is a somewhat extreme example, it illustrates very well how the trick works. The correct question to ask is what is the overall survival rate and quality of life in the treatment group compared to that of the control group? It is always safe to assume that any study that fails to mention total mortality outcome is flawed.

Kendrick cautions that when you hear that the “science is settled” regarding any topic of medicine, what you are really hearing is that no

dissent will be tolerated. Intolerance for dissent is not science, it is fundamentalist religion.

Another good clue that you have departed from the rails of science is when you come across a vicious rant accusing some hapless contemporary of worshiping Hitler, sexism, racism, trying to murder his patients, blowing up the world, mutilating puppies, and so on. There are several splendid examples in the book and when you stumble onto something like that it is an excellent opportunity to calibrate your claptrap-o-meter to maximum. There is no science to see here, just an emotional temper tantrum. Really, even a money-grubbing snake wouldn’t try to kill his patients. That would be bad for business.

There are enough good quotes in this book to fill a 20-page review so it is hard for me to narrow it down. Zombie science is defined as “science that is dead, but is artificially kept moving by a continual infusion of funding.” To the casual observer it looks real but zombie science does not pursue truth. Its goals are non-scientific, usually money-oriented, since profit is the first priority of the large corporations that provide most of its funding. Grandiose claims are made, as in the example of a press release for the Heart Protection Study promising that thousands of lives will be saved each year thanks to statin drugs. Dr. Kendrick makes the clarifying observation that no drug has ever saved a single life. None. Zero. Everybody dies. If we are going to be so scientific and so impressed with our own science then we need to be more careful in how we state our conclusions. To be more scientifically accurate,



It is always safe to assume that any study that fails to mention total mortality outcome is flawed.

to make darn sure you develop diabetes and there is no chance of a wrong diagnosis, because that would be awkward.

A key point is made in Chapter 8 that human biochemistry has been fairly stable for a long time now and there is no reason to believe there are any defects in those biochemical pathways. Most pharmaceuticals inhibit those critical

pathways so it shouldn’t be a big surprise that taking those drugs (statins in particular) causes bad things to happen. The human body goes to great lengths to maintain cholesterol levels so either Mother Nature, evolution, or God, whichever one you believe in, made a colossal mistake if we need drugs to lower cholesterol. Dr. Brownstein does recognize one condition where he would prescribe a statin drug. He calls that condition “statin-deficiency syndrome.” He has not seen a single case so far in over twenty years of experience. My thumb is UP for this book.

Review by Tim Boyd

All Thumbs Book Reviews

the best you can hope for is to extend life or improve the quality of the life you have left.

The Heart Protection Study only looked at people who already had heart disease, diabetes, or stroke. On the average then, how long did statin drugs extend life in this study (assuming it was honestly done; more on that below)? Drum roll, please. The answer is ... three months. After great expense and inconvenience you can expect to gain about ninety days of side-effect-riddled existence. And so the Medical Mediocrity Medal goes to the statin producers.

The title of chapter four sums up much of what the book focuses on: "Things that are not true are often held to be true." I like Mark Twain's way of putting it, "It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so." Kendrick points out the pitfalls of trusting the experts and even recommends not blindly trusting what he himself says.

What is going on in medical science today and who would be the best source to get straight answers from? One group who would certainly know would be the editors of major medical journals, but can you trust them? Would they jeopardize their paychecks to spill the beans? Probably not, but perhaps after they retire? In this case you find some very interesting quotes that carry real weight. These are the quotes I find most interesting. They rip the lid off the dark underside of Western medicine:

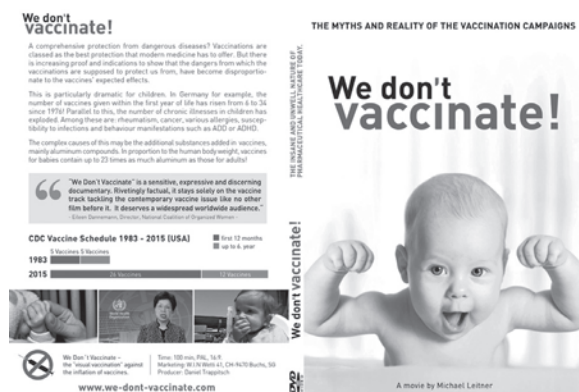
Dr. Marcia Angell said, "It is simply no longer possible to believe much of the clinical research that is published, or to rely on the judgment of trusted physicians or authoritative medical guidelines. I take no pleasure in this conclusion, which I reached slowly and reluctantly over my two decades as an editor of *The New England Journal of Medicine*."

Drummond Rennie, deputy editor of the *Journal of the American Medical Association*: "There seems to be no study too fragmented, no hypothesis too trivial, no literature citation too biased or too egotistical, no design too warped, no methodology too bungled, ... (many more too something or other) ... and no syntax too offensive for a paper to end up in print."

Richard Horton, editor of the *Lancet*, says, "The mistake, of course, is to have thought that peer review was any more than a crude means of discovering the acceptability—not the validity—of a new finding. ... We know that the system of peer review is biased, unjust, unaccountable, incomplete, easily fixed, often insulting, usually ignorant, occasionally foolish and frequently wrong."

Richard Smith edited the *British Medical Journal (BMJ)* for many years and he writes, "Twenty years ago this week the statistician Doug Altman published an editorial in the *BMJ* arguing that much medical research was of poor quality and misleading. ... Altman's conclusion was: We need less research, better research, and research done for the right reasons. Abandoning using the number of publications as a measure of ability would be a start."

How many times have I said that the truth is not up to a vote? I'm all aquiver with feelings of affirmation and validation. Maybe getting your medical opinions from the CONsensus bureau is not such a great idea after all. Richard Smith goes on to state that this twenty-year-old editorial by Doug Altman could be published today nearly unchanged. Smith concedes that quality assurance methods have been put in place to correct these problems but, in a nutshell, they do not work and are useless. My thumb, on the other hand, does work. Actually both thumbs work, not just the one on the other hand, and they are both way UP for this book. Review by Tim Boyd



WE DON'T VACCINATE

We Don't Vaccinate is a sensitive, expressive and discerning documentary. Rivetingly factual, it stays solely on the vaccine track tackling the contemporary vaccine issue like no other film before it. Out of Germany, the originating homeland of Merck & GlaxoSmithKline, Michael Leitner's documentary, We Don't Vaccinate deserves a widespread worldwide audience so that the mass hypnosis which allows these pharmaceutical companies to commit crimes against humanity can finally come to an end.

\$3.00 to rent, \$8.00 to download, vimeo.com/ondemand/wdv

All Thumbs Book Reviews

Make Mead like a Viking: Traditional Techniques for Brewing Natural, Wild-Fermented, Honey-based Wines and Beers

**Jereme Zimmerman
Chelsea Green Publishing 2015**

Perhaps it is the Nordic blood in me (if there is any), or the fact that the author is a Kentucky native, the state I currently call home, but few books have brought me as much delight this year as Jereme Zimmerman's contribution to reviving the ancient art of fermented beverages. On all counts this book is most enjoyable and engaging, and especially so in its emphasis on traditional, natural brewing techniques and tactics. Indeed, the latter perspective is what sets this book apart from most others, and makes it a must-have for any traditional fermenter. Books abound that describe the use of modern equipment such as airlocks and carboys and all the other gadgets and gizmos that tend to make getting into brewing intimidating and expensive for the novice. *Make Mead like a Viking* turns away from modern refinements and looks back at thousands of years of tradition when people brewed beverages with simple inputs and simple equipment.

The book weaves together two goals—not only how to, but also *why* to make these beverages—as it roams history to inspire and equip the reader. The organization of the book aids this endeavor, along with the artful admixture of myth and history into the story's brew, adding flavor and effervescence at just the right spots. Whether you brew kombucha, Jun tea, water kefir, or some other assortment of fermented drinks, Zimmerman's book will enhance your understanding, magnify your awe of the alchemy in making such elixirs, and excite your sense of possibilities when it comes to the power of fermentation.

Many of the chapters are applicable in ways far beyond the mere making of mead. The discussions of herbs and varieties of honey, for instance, are of value to any food preparer,

brewer, or forager. Zimmerman does an excellent job explicating the health benefits of herbs and honey, noting how microbes amplify these benefits.

The book also explores some technical issues related to fermentation, and makes mention of multiple resources that even in my many years of brewing and reading I was unaware of, such as the University of Pennsylvania's Biomolecular Archeology Laboratory for Cuisine, Fermented Beverages, and Health (page 18)! That sounds like a superb use of research dollars and scientific energy. Modern and archaic resources are deployed throughout the book, all sure to whet the reader's appetite for a nearly endless banquet of brews.

The later section of the book covers basics like equipment, techniques, and recipes. His discussion of water is useful for fermenters of any foods (page 61). In an age where writers too often shill expensive and convoluted processes to create dependence on complex gadgets and inputs, Zimmerman is a refreshing voice. He reminds readers that our ancient ancestors didn't have commercialized, industrialized strains of yeast, industrial brewing vessels, certified kitchens, and the like, yet their products were far more nourishing, flavorful and friendship-building than anything the industrialized world has to offer. Indeed, he takes time to point out that the industrialization of traditional beverages was the result of the strange mix of "religious fervency, political manipulation, and mercantile/big-business interests [that] supplanted a variegated ancient brewing tradition with laws that greatly minimized the ability of the masses to produce and ingest what they desire, all in the name of 'public health'" (page 33).

Zimmerman kindly includes do-it-yourself instructions for constructing some of your own home-brew equipment and where to source the necessary parts affordably. And he practices the ancient techniques that he preaches: often starting batches of brew outdoors near apple

Continued on page 74.



Religious fervency, political manipulation, and mercantile interests supplanted a variegated ancient brewing tradition with laws that greatly minimized the ability of the masses to produce and ingest what they desire, all in the name of "public health."

All Thumbs Book Reviews



Stop Vision Loss Now: Prevent and Heal Cataracts, Glaucoma, Macular Degeneration, and Other Common Eye Disorders
Bruce Fife, ND
Piccadilly Books, Ltd. 2015

Unable to believe my eyes that Dr. Bruce Fife might offer hope by suggesting ways of preventing and even healing serious and frightening degenerative eye diseases such as cataracts, glaucoma, and macular degeneration, I simply had to read this new and very timely addition to Dr. Fife's library of guides to health via coconut oil. I was not disappointed at learning of his new recommendations for using coconut oil, including coconut water, not just as food or beverage, but by using these two nutrient-dense foods directly in our eyes!

The book begins with an explanation in easy-to-understand language of the complexity of the human eye including photos that depict each part of the eye, its function, and how some health conditions, such as diabetes and atherosclerosis, affect circulation, causing damage to the tiny blood vessels that feed the retina. One of the most common of these disorders is diabetic retinopathy. Dr. Fife further goes on to explain the differences between nearsighted and farsighted vision and how light rays affect each condition.

The common eye disorders explained in-

clude cataracts, glaucoma, macular degeneration, diabetic retinopathy, optic neuritis, stroke, and infections. I was especially intrigued by the chapter titled "Vision Busters" in which Dr. Fife goes to great lengths to explicate how free radicals can substantially damage delicate eye tissue.

The nutritional aspects of the book are also very helpful as Dr. Fife makes it very clear to those who are not getting enough natural vitamin A that the best sources come from animal products; namely liver, egg yolks, butter, lard, and cod liver oil. Dr. Fife points out that while beta-carotene in plants such as carrots can be converted into vitamin A in the body, the conversion isn't very efficient, and adequate amounts of fat are necessary at the same time beta-carotenes are consumed in order for the body to make that conversion at all. The discussion on the positive effects of red palm oil on eye health was a pleasant surprise. Chapter after chapter, Dr. Fife addresses the problems of ageing eyes, excessive sugar intake, refined carbohydrate consumption, and the harmful effects of drugs, smoking, and excitotoxins such as MSG.

I would also like to offer a personal testimony and the reason the title of this book was so eye-catching to me. For well over a year I have had a serious case of epicleritis, which is normally a mild, on-going inflammatory eye condition. My condition, however, was extremely painful and diagnosed as one of the more serious

Mead, continued from page 73.

trees and other biologically diverse locations to capture wild yeasts and other helpers that make his meads marvelous as well as magical.

Zimmerman's recipes are detailed in both ingredients and instruction, yet he continually reminds us that fermentation is a journey, and each of us, in our unique environments, will want to obtain ingredients from small local farms and also forage when possible. His brewing instructions are therefore marked by wise suggestions

and experienced guidance yet cannot promise certain outcomes. Thank goodness for that, since all the fun comes from making one's own discoveries along the way.

In summary, I cannot say enough good things about this book, other than to recommend that you get your hands on a copy and immerse yourself not only in the ancient mythology of mead, but in the wider history of food preservation and fermentation that our forefathers and mothers mastered to imbue their lives with pleasure, robust health, and a bit of magic. My only regret after finishing the book is that I have not tried brewing traditional mead sooner, but I hope a few phone calls will remedy my delay.

Review by John Moody

All Thumbs Book Reviews

cases. I had to resort to steroids to reduce the almost unbearable eye pain and inflammation in both eyes. I was also cautioned to use the steroids only as directed and that in my case I would need to take them for the rest of my life as this condition, once contracted, was incurable!

I was also told that eventually the steroids could lead to glaucoma and/or other eye disorders, yet of course I was assured that there were drugs ready to address those conditions. Naturally, as the holistic-health-oriented person I've been all my life, I was devastated by this prognosis, but did resort to the steroids only during the most painful time while also increasing my supplementation of vitamin A, lutein, and other natural supports from food. The pain, although tolerable after the first two weeks of using the steroids, still left me with extreme eye fatigue and a constant scratchy feeling that I had something in my eyes. Working on the computer became

virtually impossible except for short periods of time.

Reading through the book a few pages at a time, I could see that some of the foods and remedies that Dr. Fife advocates were absent from my diet and I immediately began to apply some of the recommendations. The book carefully reviews fats, particular foods, the miracle of a ketogenic diet, and the top nutrients especially necessary for good eye health. It also describes in very easy-to-understand language how each of these common eye disorders like cataracts, glaucoma, and macular degeneration can be prevented and how they generally start. I'd never read any of these facts before in any eye health book.

Skeptical that treating my eyes with the recommendations outlined in this book might have any effect on my condition, I nevertheless began to follow the guidelines almost immediately. I have been stunned that after just two weeks even the residual, although mild, pain in both eyes is completely gone, and the scratchy sensations, eye fatigue, and dryness are now much improved. Certainly I am no chemist and cannot explain this in medical terms. What I can say is that my recovery is real, and I have been able to return to using my computer full time.

I would encourage everyone to have this book as a permanent part of their library. It's one of the best of Dr. Fife's many books to date.

Review by Maria Atwood

BOOK REVIEWS IN WISE TRADITIONS

The Weston A. Price Foundation receives *two or three books per week*, all of course seeking a Thumbs Up review. What are the criteria we use for choosing a book to review, and for giving a Thumbs Up review?

- First and foremost, we are looking for books that add to the WAPF message. Dietary advice should incorporate the WAPF guidelines while adding new insights, new discoveries and/or new therapies.
- We are especially interested in books on the fat-soluble vitamins, traditional food preparation methods and healing protocols based on the WAPF dietary principles.
- We look for consistency. If you talk about toxins in vaccines in one part of your book, but say you are not against vaccines in another part of your book, or praise fat in your text but include recipes featuring lean meat, we are unlikely to review it.
- We do not like to give Thumbs Down reviews. If we do not agree with the major tenets expounded in a book sent to us, we will just not review it. However, we feel that we have an obligation to point out the problems in influential or bestselling books that are peddling misinformation, and for these we will give a negative review. We also will give a negative review to a book that misrepresents the findings of Weston A. Price.
- Please do not send us a book as an email attachment. Have the courtesy to send us a hard copy book or a print-out of your ebook or manuscript in a coil binding.

All Thumbs Book Reviews



***The Blue Zones Solutions:
Eating and Living
Like the World's Healthiest People***
By Dan Buettner
National Geographic

As in *The Blue Zones*, his earlier paean to the world's traditional diets and lifestyles, author Buettner's new book begins with detailed descriptions of centenarians preparing their indigenous cuisines. He finishes off these introductory tales with a description of a regional Costa Rican diet filled with eggs, cheese, meat and lard, which he dubs "the best longevity diet in the world."

Then Buettner turns to how we're to adapt this, and his other model eating practices, into our current lives. At this point he suddenly presents us with a twenty-first century pesco-vegan regimen that is the opposite of the traditional food intake that he has just described in loving detail. He wants us to fast every twenty-four hours by eating only during an eight-hour period each day. He wants us to eat almost no meat, poultry, eggs or dairy products at any time. Aside from small amounts of olive oil, added fats are not even mentioned, except to be warned against.

Instead, Buettner urges us to eat fish daily, something that, historically, only coastal peoples ever did. Apparently we are to disregard the toxic load of mercury and other contaminants that he confusingly points out are now found in seafood. We're also to eat two handfuls of nuts and seeds daily, an overload of calories high in often-damaged and always-inflammatory omega-6 oils, when we are already consuming as much as twenty times the ideal amounts. In fact, only one or two handfuls of soaked fresh nuts and seeds twice a week gives us the small, safe amounts of these essential fatty acids that we may need.

All of this constitutes a shocking misrepresentation of traditional eating. At this time of modern dietary peril, when a faithful account could have been so helpful, Buettner instead

further contributes to the precipitous demise of our nutritional heritage. Why? In the service of the increasingly trendy yet unsubstantiated notion that a vegan-type diet is the ultimate in healthy eating.

Accordingly, Buettner's choice of what he and his team consider an exemplary American diet is that of the vegetarian Seventh Day Adventists. He admits that its highly processed soy protein content is a problem, though he nevertheless advocates that everyone consume lots of tofu (with no regard for the now well-substantiated objections to soy foods). Then he quotes a study that found 16 percent of typical Adventist meals to be actually composed of animal products: meat, poultry, dairy, eggs, and fish, further confusing his message.

Buettner includes a chart showing that the Adventist diet consists of 75 percent vegetables, fruit, and grain, with 24 percent protein and fat. What it does not contain much of is sugar (one percent). As we know from Price's surveys, this is key. The macronutrient composition of the healthful traditional diets he surveyed varied widely, but one thing they all had in common was little or no sugar. Again strangely, although Buettner forbids the traditional consumption of meat and fat altogether, he encourages what he found to be the average Blue Zone consumption of sugar, up to seven teaspoons daily.

The Adventist diet, mostly comprised of carbohydrates, makes its adherents vulnerable to a problem that we see constantly at our virtual clinic: carbohydrate addiction. The ninety-nine-year-old, strictly vegan Adventist interviewed for the book was still extremely physically active, yet he would allow himself only two meals a day "to prevent weight gain." When Buettner describes what the man's breakfast consisted of, it became clear why. "...A giant bowl of whole-grain cereal floating in soy milk, a cornucopia-like bowl of fruit, a stack of whole wheat toast, a large glass of pulpy orange juice" and some nuts and nut butter. He sounds like most of the vegans and vegetarians who come to our clinic, desperately trying

He wants us
to eat almost
no meat,
poultry, eggs
or dairy
products at
any time.

All Thumbs Book Reviews

***Real Food for Rookies* Kelly the Kitchen Kop House of Bread Books**

The switch from processed foods to real foods can be a daunting challenge, especially for a mom trying to convert her whole family. Kelly Moeggenborg, a.k.a. Kelly the Kitchen Kop, has been there and done that—she converted herself, her husband and her children from a SAD diet to a nutrient-dense WAPF-style diet—so she knows the frustrations and pitfalls.

She begins with her Quick Reference Real Food Ingredient Guide, which gives good and best choices versus an “avoid” column for meats, eggs, seafood, nuts, dairy products, fats and oils, grain products and many more categories. This guide wisely includes protein shakes, with a warning to avoid powdered protein and powdered whey. Other chapters cover the basics on fats and oils, dairy foods, soy foods, additives, cooking techniques and fermented foods.

Then Kelly delves into the personal and practical. Why change the diet, many people ask; we are going to die anyway so shouldn't we just enjoy what we eat? The problem, as she rightly points out, is that if we just eat anything that tempts us, and allow our families to do the same, we end up with a life in which little can be enjoyed. The biggest motivator for many families to change their diets is the hellish behavior of their children—temper tantrums, food intolerances,

constant bickering, taking hours to go to sleep, withdrawn and autistic behavior—with concurrent stresses on married life. Once parents see the difference that simple changes can make—raw whole milk instead of commercial milk, butter instead of margarine, homemade salad dressing instead of bottled concoctions—they are often willing to go the distance.

Still, Kelly warns against the pursuit of perfection, which can lead to burnout. She gives the story of a gal who couldn't get to the market one week to get her farm-fresh eggs, so rather than get organic eggs at a store, she went to a fast food drive-thru for breakfast!

Kelly provides excellent advice on finding the time, working within a budget, getting kids to take cod liver oil and getting the family on board. The best weapon of the traditional diet movement is the delicious way the food tastes—vegetables are not hard to eat when smothered in butter and breakfast is always a pleasure when it includes bacon. Comfort foods like meatloaf, gravy and mashed potatoes can and should be included in the diet. With rich, nutrient-dense foods, the cravings for junk will soon subside.

Kelly often points to one fantastic resource for parents making the transition from processed to real food—the local chapters of the Weston A. Price Foundation. And this helpful, practical book is completely WAPF-friendly. *Real Food for Rookies* will help you be the Good Cop in your kitchen.

Review by Sally Fallon Morell



The biggest motivator for many families to change their diets is the hellish behavior of their children.

to lose weight by skipping meals or through more formal starvation dieting attempts to make up for their helpless over-consumption of sweets and starches. Traditional diets that include a better balance of protein and fat tend to prevent this problem. But, since our cutting of calories from fat and meat and our increases in “fat-free” carb consumption in the 1970s, that balance has been fatally lost.

I recently published a major update of my book, *The Diet Cure*, which starts with a chapter on the brain-targeted nutrients that can stop all

cravings for refined carbohydrates. My entire next book, out later in 2016, will address the public health crisis now facing our nation and the world: our mass over-consumption of processed and toxic sugars, starches and oils. Despite the recent and on-going scientific exposé of sugar in particular, the toll of weight gain and diabetes rises ever higher. Knowledge and willpower are inadequate in the face of the virulent biochemical addiction that the food industry has unleashed on us. The use of amino acid supplementation, which eradicates the powerful brain-generated cravings for these drug-like substances, is a quick and effective means to return us to the health-restoring diet of our forebears. Before it's too late.

Review by Julia Ross, MA, MFT, author of *The Diet Cure* and *The Mood Cure* and director of the Diet Cure Virtual Clinic (dietcure.com)



Tim's DVD Reviews

*Seeding Fear: The Story of
Michael White vs. Monsanto*
Kings Point Productions
[youtube.com/watch?v=YZGueao0tE](https://www.youtube.com/watch?v=YZGueao0tE)

Michael White stares at his father's grave as he tells the story of the confrontation between his family and Monsanto in this ten-minute YouTube video. Monsanto sued his father in 2003 for saving soy seeds. Michael declares that his father never grew a soybean in his life. He paints the picture of an old man using a walker to make his way into court to go up against a pack of rich, well-dressed lawyers. Even after the case was over and White's father won, he was tormented by the prospect that Monsanto might come after him again and the nightmare would be repeated. The psychological trauma ultimately destroyed him.

Ninety percent of the corn, soy and cotton grown in the United States is produced by Monsanto. Monsanto has attacked hundreds of farmers for doing nothing more than farming, using strong-arm, underhanded tactics to drive nearly all seed savers or seed cleaners out of business and making it dangerous for farmers to clean seeds. Monsanto sends undercover agents in to seed savers with GMO patented seed. The agents lie to the seed saver, claiming it is regular seed. The seed saver does his work and then he is busted. It's a sick game. Some farmers, including Michael White, have also received death threats.

Very few Americans have read Mary Shelley's *Frankenstein* although almost everyone is familiar with the movies that caricature the novel. If you have actually read the novel you know it is a haunting nightmare of a tragedy. Nicknaming Monsanto's products "Frankenfood" is therefore a very appropriate sinister sobriquet. One commentator has said that unlike other classic authors, the very young Mary Shelley didn't offer many answers to the dilemma she wrote about. I think she did offer one very clear answer to dealing with the fallout of playing God: Don't.

Do. It. Idiot.

Monsanto is doing it. We are all paying the price and living the nightmare. But there is a difference between Monsanto and Dr. Frankenstein—Victor Frankenstein at least was horrified by what he had wrought. Monsanto has shown no detectable trace of conscience or morality.

Michael White is a man of faith who knows that all giants in history have fallen sooner or later. This one will, too. This video rates a thumbs UP.

*Low-Carb High-Fat Convention:
The Obesity Epidemic*
Zoë Harcombe
Real Meal Revolution

Harcombe presents some pertinent statistics behind the well-known surge in obesity that began around 1980, give or take a few years. In the UK in 1966 the obesity rate was 1.8 percent. By 1999 it was up to 25.8 percent. She shows a picture of one of the more extreme cases, a teenager named Georgia Davis who weighs in at a svelte 400 kg. We in the States have never been big fans of the metric system so I will translate. That is about 880 pounds.

What happened? Did we suddenly become lazy pigs? Maybe some did, but in general, no. One key development about that time was the release of new dietary guidelines by the committee headed by George McGovern. These guidelines really kicked off the lowfat craze in the United States, followed a few years later in the UK and then the rest of the world. A lowfat diet by necessity becomes a high-carb diet, and the most tempting carbs are the sugary junk foods. What could possibly go wrong?

The next question is why the big change in dietary recommendations? Many assume that there were studies showing fat as the favorite weapon of the Grim Reaper. The main culprits covered in this video are Ancel Keys and Bugs Bunny. Bugs Bunny himself actually was not

Monsanto
has attacked
hundreds
of farmers
for doing
nothing
more than
farming, using
strong-arm,
underhanded
tactics to
drive nearly
all seed
savers or seed
cleaners out
of business
and making
it dangerous
for farmers to
clean seeds.

Tim's DVD Reviews

to blame and, as a cartoon character, was rather harmless (and highly entertaining). It was all those rabbits who were fed cholesterol in animal experiments and got clogged up by it. The thing is, it wasn't really their fault either because they were fed things they were not designed to eat. More appropriate animals like rats and dogs had no problem eating cholesterol.

As for Ancel Keys, he claimed early on that dietary cholesterol had no effect on blood levels of cholesterol, yet later in his Seven Countries Study he asserted that higher dietary fat and cholesterol led to greater risk of death from heart disease. As we've said many times, that study came from heavily cherry-picked data. Harcombe points out that there is a stronger correlation in his data between heart disease and latitude than cholesterol. Maybe all we need to do to fix this is move south.

She then shows a graph from a modern version of the Seven Countries Study but now including one hundred ninety-two countries. The data points are very scattered but there is a slight trend toward lower deaths from all causes (a much better metric anyway) and *higher* cholesterol levels. In other words, higher cholesterol correlates with living longer.

Returning to a diet featuring animal foods and the fat they contain—the diet that has sustained us for 99.9+ percent of our human history—might seem oddly radical in today's world. Our experiment with lowfat, tasteless swill has failed, so maybe it is time for something radical.

Obstacles to this radical change include public health authorities, economic factors and conflicts of interest. Health authorities and experts in general always hate to admit they were wrong and might not be as smart as they want everyone to believe they are. Economically speaking, what are we going to do with all those employees of fast fooderies when we start eating real food again? And what of the medical practitioners who will be out of jobs due to lack of patients? What about Pepsi? Pepsi makes more

money than 65 percent of the countries of the world. The economic devastation is just too great to contemplate. We can't afford to get healthy.

Several charts on conflict of interest paint the picture clearly. The American Dietetic Association is sponsored by the likes of General Mills, Kellogg's, SoyJoy, Mars, Coca Cola and Pepsi. The British Nutrition Foundation is sponsored by Nestlé, Coca Cola, McDonald's, Kellogg's, Kraft, Cadbury, Pepsi, and others. The Association for Dietetics in South Africa is sponsored by Kellogg's, Nestlé and so on. In many cases, these are not just sponsors but "partners."

Michael Pollan is famous for saying, "Eat food, mostly plants, not too much." In contrast, Zoë Harcombe likes to say, "Eat food, mostly animals, quite a lot." The lecture hall where this talk was given has a nifty widget on the podium with green, yellow, and red lights to alert the speaker. Green: you have plenty of time. Yellow: time to wrap it up. Red, you're done, watch out for the big hook coming at you from the side. As the red light was flashing, Harcombe referred to the late Barry Groves who said civilized man is the only chronically sick animal on the planet. She asked whether this might be because he is the only species clever enough to make his own food ... and stupid enough to eat it. I think the red light is blinking on this review, so to sum up: thumbs UP.

Farming in Fear

Written & Produced by Sean W Malone
[youtube.com/watch?v=h7pK69i91SU](https://www.youtube.com/watch?v=h7pK69i91SU)

Martha Boneta purchased a farm in Paris, Virginia that was a bit run down. She put years of work into rebuilding and turned it into a very nice place. There was an easement that specified that no urban development was to take place. She agreed to that and complied with it completely. She had managed to get everything operational and was selling products from her farm store when trouble commenced.

The American Dietetic Association is sponsored by the likes of General Mills, Kellogg's, SoyJoy, Mars, Coca Cola and Pepsi.

Tim's DVD Reviews

The Piedmont Environmental Council began snooping around and making accusations, threats and demands. The county decided her handmade signs in the farm store were not good enough and had to be professionally made. A neighbor sent a picture of an abused horse to animal control agents accusing Boneta of abusing animals. The photo was not of Boneta's horse nor had she anything to do with it.

The harassment and unreasonable inspections got worse. The source of all the antagonism was unknown until 2009 when Boneta discovered that a group of powerful people were orchestrating these attacks. County supervisor Peter Schwartz, former farm owners Phil and Patricia Thomas, and the Piedmont Environmental Council were out to "rein in this dreadful woman." She was farming her land and selling her produce from her farm store on her property. This outrage had to be stopped.

Boneta was charged with phony zoning violations for selling what she produced from her farm. Every other farm in the area did the same thing without harassment. Boneta was eventually forced to shut down for a while. In the process she found out that this same kind of thing is happening to people like her all over the country. Farmageddon continues.

Boneta worked with local representatives to introduce a "Right-to-Farm Act" which was defeated in the Virginia senate. At one point County Supervisor Schwartz publicly disclosed that Boneta was being audited by the IRS. What made this even more chilling was that Boneta herself had not been informed of that fact yet. How did Schwartz know that at all, let alone before she did? This gave Boneta a new understanding of how powerful and corrupt the forces against her were.

Fortunately, positive progress has been made. Boneta worked with larger groups to introduce a new right-to-farm bill which passed in 2014. For now, at least, it is legal to farm in Virginia. Thumbs UP to that and to this video.

Health 101 Simplified

Dr. Donald K. Weber, DC
(Audio CD)

Dr. Weber's views on blood pressure are a little different from those of most other doctors. He believes that your blood pressure is what it is supposed to be. In other words, artificially adjusting it with drugs is not "correcting" anything. Blood pressure is controlled by oxygen levels in the brain. If the brain is not getting enough oxygen it raises the blood pressure until it does get enough oxygen. Normal blood pressure is considered to be around 120 over 80, although the pharmaceutical companies would like to lower those figures so that they can make a whole lot more money selling their drugs to a lot more people.

The ratio of 120 over 80 is 3:2. If your pressure is higher but in the same ratio (150 over 100, for example), then you are dehydrated, according to Dr. Weber. I'm pretty sure there is not a drug in the world that cures dehydration, but I'm not a doctor. Weber also mentions that chemicals from things like processed lunch meat can raise blood pressure.

Many doctors seem to prefer prescribing expensive drugs to lower blood pressure. Do they work? Well, they lower pressure but they do that by weakening the heart. That doesn't sound good to me but, as I've said, I'm not a doctor. The result is insufficient oxygen to the brain resulting in dizziness, light-headedness or even blackouts. That is a known side-effect of blood pressure medication. Over the long run, brain cells start dying when they don't get enough oxygen. That doesn't sound too good to me either, but then, I'm still not a doctor.

A variety of subjects are covered in this CD. Dr. Weber takes a similar approach to analyzing cholesterol levels: your cholesterol level is what it is supposed to be. Lowering it with drugs is a shortcut to Alzheimer's disease or cancer.

The best sources of vitamin D are fish and the sun. Weber clarifies that farmed fish are not a source of vitamin D. They don't have any. The sun should be a good source but because many people don't get enough saturated fat or other nutrients, they burn too easily. Since they burn too easily, they stay out of the sun. Dr. Weber recommends fermented cod liver oil as one of the best sources of vitamin D.

As for other topics, Dr. Weber believes soy is not digestible and GMO foods are effective for birth control. He discusses a rice diet. That doesn't sound like a Weston A. Price diet, and it's not. He does not advocate this diet long term, yet instead recommends it for recuperation and explicitly includes fermented cod liver oil and butter oil to supply vitamin A and D, which are not provided by rice. My thumb does not have a strong opinion on some of these things but is inclined to point UP for the CD as a whole.



Farm and Ranch

TEACHING TRADITIONAL ORGANIC FOOD AND FARMING SYSTEMS

By Joseph R. Heckman, PhD

The teaching of traditional dietary principles was very important to Weston A. Price as reflected in his final words, “You teach, you teach, you teach.” And so it is appropriate that his classic work, *Nutrition and Physical Degeneration*, should serve as the main text for teaching an introductory college course.

As a professor of soil science, it is my privilege and pleasure to share with students my curiosity, passion and research interests relating to traditional organic food and farming systems in my seminar of the same name. The actual course description can be viewed at this link: byrne.rutgers.edu/seminars/courses/traditional-organic-food-and-farming-systems.

This course is a compilation of what I have learned from reading *Nutrition and Physical Degeneration*, my research into organic farming systems and my extension programs on soil fertility in support of plant, animal and human health.

I have been teaching this special ten-week course to first-year students at Rutgers University every fall semester since 2012. At Rutgers-New Brunswick these courses are known as Byrne Seminars. The hundred or so various Byrne Seminar offerings are each designed to provide students with a chance to explore subject areas that interest them. As new students they are typically in the process of deciding major study areas and career paths. Having the words “organic food” in the course title seems to attract many students thinking of majoring in nutrition.

Course learning objectives include an introduction to the ecological basis for organic farming and food systems; an awareness of differences between traditional organic foods, modern USDA certified organic and commercial foods; an appreciation for why people choose to eat traditional foods; becoming familiar with resources for finding, producing or preparing traditional foods; and developing critical think-

ing skills for analysis of scientific controversies relating to making personal food choices.

Another course I teach at Rutgers is principles of organic crop production, which, as the title indicates, is focused on teaching students the methods of organic food production using standards as defined by the USDA National Organic Program (USDA-NOP). In contrast, my seminar on traditional organic food and farming systems as a seminar is focused on the importance of producing meat, milk and eggs on pasture; animal fats; raw whole foods; properly prepared sprouted grains; fermentation; gathering wild foods, and so on.

The differences between organic foods as defined by the USDA-NOP and what I refer to as traditional organic foods is best explained by using an example. An excellent illustration of this difference was given by Jerome Rodale in a 1958 article that appeared in *Organic Gardening* magazine: “It is not organic to produce milk organically, and then to pasteurize it.” Although USDA-NOP prohibits irradiation of foods it authorizes pasteurization. In fact, the vast majority of the USDA-certified organic milk supply is highly processed via ultra-pasteurization and homogenization. On the other hand, traditional organic milk would be whole, fresh and unprocessed except for being refrigerated.

I introduce students to the history of the organic food and farming movement by having them read selected passages from the pioneers of the organics movement, including F.H. King, Sir Albert Howard, Eve Balfour, Walter Northbourne, Jerome Rodale and especially Weston A. Price.

Each student is assigned to read a chapter from *Nutrition and Physical Degeneration* and later must deliver a short oral presentation on the highlights of Dr. Price’s travels and observations as described in his classic work. Each student presents a different chapter in front of

It is not organic to produce milk organically, and then to pasteurize it.

the class. Via these short oral student presentations we are able to cover most of the contents from Dr. Price's five-hundred-ten-page book. As the semester progresses, I encourage student discussion around commonalities and differences among types of foods from region to region and also about the health consequences as observed by Dr. Price when modern commercial foods displaced traditional diets.

Early in the semester, Judy Mudrak has given guest lectures on the topic of the isolated and modernized Swiss. Judy, a native of Switzerland, a WAPF chapter leader, author of a German-language book on raw milk, and a summer tour guide in the Loetschental Valley, is an especially well-qualified speaker. Dressed in traditional Swiss garb, Judy brings so much valuable content and color to the classroom that the students relax and really enjoy the learning experience. This special lecture helps students imagine walking in the footsteps of Dr. Price.

In the classroom, I deliver a detailed lecture on the history of the raw milk movement in the United States beginning with the story of Henry Coit, MD, and his founding of the Medical Milk Commission for the purpose of producing clean, safe certified milk for the feeding of infants and children. The huge controversy surrounding raw milk for human consumption is described in its historical, legal, political and scientific context. This fascinating course topic has great educational value. It exposes students to what is actually in the scientific record and draws out contrasts and questions about official pronouncements from government agencies.

An extensive collection of historical, legal, political and scientific literature concerning raw milk is housed at Rutgers New Jersey Agricultural Experiment Station. I began collecting and organizing a digital archive of this raw milk literature in 2007 in response to an upwelling of controversy when I began hosting seminars on the subject by such qualified individuals as Mark McAfee, Gary Cox, Mark Gebhart, Don Schaffner, David Gumpert and Ted Beals. All of this valuable information is made available via electronic file sharing with students. This enables them easy access to a wealth of information such that they can freely check and verify anything concerning discussion of raw milk within the

classroom.


In addition to my lecture material on raw milk and organic food and farming history, we have time for viewing selected DVDs in the classroom. For example, screening of the "Farmageddon" documentary is a real eye-opener for students regarding recent events in the food rights movement. This film helps to stimulate student interest and classroom discussion.

Every class period I bring into the classroom samples of traditional foods for the students to taste. These foods have included Celtic sea salt; organic raw kombucha; organic apples; local paw paw fruit; local black walnuts; fermented cod liver oil; organic popcorn made with organic coconut oil; organic butter; and organic raw milk cheese. For the class period when I bring in the Celtic sea salt, I also make Morton salt available. Interestingly, a show of hands after the salt tasting has without exception shown student preference for Celtic sea salt. And for the class period when I bring in butter I also show them conventional butter to compare. This is so they can observe the darker color of the organic pasture-fed brand.

The one food—raw milk—that we talk so much about in the classroom I cannot provide for students to taste. Since raw milk sales are currently not legal in New Jersey, this one forbidden traditional food item seems to generate further curiosity about it. Students are made aware where they can go to find traditional foods with the WAPF Shopping Guide or with the help of the Northeast Organic Farming Association (NOFA).

Among the many valuable lessons for students, I emphasize that the information presented in this seminar is not intended to tell anyone about what they should or should not eat. Rather, the main objective is to become familiar with the scientific, social and philosophical reasons why some people choose to eat traditional foods and why they support traditional organic farming systems. And I remind them that this seminar is about teaching respect and tolerance for other individuals' dietary choices whether or not you agree with those choices.

Byrne seminars are small, one-credit courses, limited to just twenty students that meet for only ten weeks. On the last day of class some students say that they are sad to see the class end. For these students I suggest that they form a Rutgers student chapter of the Weston A. Price Foundation for which I would be happy to serve as faculty advisor. Or students may decide to enroll in the other courses I teach at Rutgers.

Because the seminars are graded Pass/No Credit, and have no formal exams (but attendance is required) the relaxed atmosphere is conducive to discussion. It has been said that "Many graduating seniors who took a Byrne Seminar in their first year marvel at the difference their Byrne professors made in shaping the career paths they later chose." Beyond career choice I imagine students leave my classroom with life-changing relationships to food and farming. 

Joseph Heckman, PhD, is a professor of soil science at Rutgers University where he teaches courses in soil fertility, organic crop production, and agroecology.

2015 WISE TRADITIONS CONFERENCE ANNUAL GUIDED FARM VISIT

Fifty-four people joined the adventure this year on our eighth annual guided farm visit with speaker Will Winter, DVM.

5 BAR BEEF (5barbeef.com)

As Frank Fitzpatrick rode up to greet us, our group got a up-close look at one of the truly iconic cowboys of the American West. Once Frank started talking we were able to witness something even more beautiful, more rare, and certainly more radical. With his beautiful herd of locally adapted cattle, the largest Barzona herd west of the Mississippi, Frank has broken away from the mainstream beef producers who typically produce conventional drug and corn-dependent steers. Furthermore, the conventional producer is usually only able to do so by virtue of greener, more lush farm land. Because of Frank's wisdom, his cattle thrive in radiant health and fertility on the arid scrub brush of Southern California's coastal hills. Frank is a living storehouse of the critical knowledge that ranchers new or old need to raise healthy cattle, and to deepen soil tilth and pasture fertility, as well as the wisdom required to create a sustainable occupation raising wholesome food. Frank Fitzpatrick is a hero in the world of sustainable, grass-fed American cattle.



PRIMAL PASTURES (primalpastures.com)

What initially lured us to visit Primal Pastures of Murrieta, California was the fact that they are “first generation farmers,” self-described “city boys who wanted to farm.” That got our attention. The minute we arrived, we knew we had struck gold. Like the principal crew of Primal Pastures, Paul Greive and Jeff, Tom and Rob McDaniel, many people today were not lucky enough to inherit farm land nor do they feel they possess even a wisp of the skills required to make it work (work being the operative word here). Anyone needing inspiration or hope for the future of food in America need look no further than the stunningly beautiful farm and ranch being created at Primal Pastures. After only a few years of development, they now have the desirable “problem” of not being able to produce fast enough to meet their demand! With business management and marketing skills that match their excellent livestock husbandry skills, this crew has put sustainable agriculture, nutrient-dense food, and locavore intelligence on the SoCal map! Expansion is everywhere on their horizon. They are now selling to a seven-county area of Southern California and soon hope to expand delivery to the entire state of California. Bravo!

After the tour we were served a delicious slow-food outdoor lunch featuring Primal Pastures chicken by the on-site restaurant and catering service in the Temecula E.A.T. Marketplace, which specializes in bridging the gap between farm to table by foraging from the local food shed and purchasing direct from small, organic farms, ranches and local food artisans. (See eatmarketplace.com.)

TEMECULA OLIVE OIL COMPANY (temeculaoliveoil.com)

As a stunningly sweet dessert ideally follows a hearty meal, we closed our tour with a visit to the Temecula Olive Oil Company near Aquanga, California. “Ahh, I think we have all died and gone to heaven!” Half our group was seated at the tasting bar while the others were given a tour of the olive groves and vineyards by co-owner, master taster and olive oil judge Thom Curry. We knew this was going to be good, but we didn't know how lucky we were until we started tasting the various golden liquids served us by co-owner and guide Catherine Pepe. Real and pure olive oil (which is difficult to ascertain or acquire these days) is one of the most critical components of the revered Mediterranean diet. This family-owned and operated business makes a daily commitment to the creation of 100 percent California olive oil using the principles of sustainable and non-toxic agriculture. The results are in the taste as well as the health-giving benefits of their incredible oils. Reluctantly having to leave this beautiful oasis at the end of the day was the only regret we had on our entire tour. However, none of us will ever forget the taste of that deliciously pure olive oil on our lips.

Report by Will Winter, DVM



Legislative Updates

THE UPS AND DOWNS IN THE FIGHT AGAINST GMOS

By Judith McGeary, Esq.

FARMERS SUE SYNGENTA OVER GMO CONTAMINATION AND LOSS OF EXPORTS

Syngenta Corp., one of the largest biotech and chemical companies, is facing multiple court challenges over its genetically engineered MIR 162 corn, including a class action suit from farmers.

Syngenta began selling this GMO corn seed (brand name Viptera) to U.S. farmers in 2011. Prior to releasing the corn for sale within the U.S., Syngenta submitted their GMO corn proposal to China for approval. But China refused to approve it. Despite this rejection, Syngenta allegedly told U.S. farmers that approval by the Chinese government was imminent.

In 2013, Chinese regulators rejected and turned away tons of U.S. corn shipments because of contamination with the unapproved Viptera GMO corn. According to the farmers' lawsuit against Syngenta: "MIR162 corn was only planted on about 3 percent of U.S. acres for the last two seasons; however, defendants did not take steps to ensure that other U.S. corn would not be contaminated with MIR162 . . . [because of] Syngenta's decision to continue marketing MIR162 to a small minority of U.S. corn farmers, the vast majority of U.S. corn has been effectively blocked from what was previously the third largest export market for U.S. corn...."

The lawsuit alleges Syngenta encouraged farmers to plant MIR 162 seeds side-by-side with other corn varieties, increasing the amount of MIR 162 that would appear in the U.S. corn supply because of the inevitable cross-pollination and commingling of crops. This put exports to countries that had not approved the trait, such as China, at risk—something Syngenta could have and should have predicted.

Over twenty thousand corn farmers have

already joined the lawsuit according to the class action's website. Because China's rejection of the corn shipments affected the price of all corn by creating domestic surpluses, farmers who raised corn in 2013/2014—whether or not it was GMO—may be able to join. For more information go to iowacornlawsuit.com.

Syngenta is also facing lawsuits from Cargill and Trans Coastal Supply Company, which exports feed for livestock, for over one hundred thirty million dollars in alleged losses.

Note: China approved the MIR162 corn for import in early December of this year. But the approval is not expected to affect the lawsuits, since they are based on the events of 2013 and 2014.

GOOD NEWS: EPA REVOKES APPROVAL OF TOXIC HERBICIDE COMBINATION

The Environmental Protection Agency (EPA) has announced it is revoking the registration of "Enlist Duo," a toxic pesticide developed for use with genetically engineered "Agent Orange" crops.

The agency approved this combination of glyphosate and 2, 4-D (one of the main ingredients in Agent Orange) just over a year ago. Dow Chemical, which developed the GMO crops and the herbicide combination, claimed in its application to EPA that the Enlist Duo was no more toxic than applying glyphosate and 2,4-D separately (which would be bad enough).

After the EPA's approval was challenged in court, however, the EPA finally took note of Dow's patent application for Enlist. When applying for a patent, an inventor needs to show that something is novel and useful. And Dow's patent application for Enlist Duo claims that this mixture of chemicals does offer farmers something new: "synergistic herbicidal weed control."

Judith McGeary is the Austin, Texas, chapter leader, an attorney and small farmer, and the executive director of the Farm and Ranch Freedom Alliance. She has a B.S. in biology from Stanford University and a J.D. from the University of Texas at Austin. She and her husband run a small grass-based farm with sheep, cattle, horses, and poultry. For more information go to farmandranch-freedom.org or call (254) 697-2661.

EPA asked Dow to explain these synergistic effects. On November 9, the company responded with what the EPA calls "extensive information." Neither Dow nor the EPA has disclosed any details, but the EPA, after taking a look at the new information, decided to ask the court for a chance to reverse its approval of Enlist Duo until it had fully evaluated the new information.

Why were Enlist and the GMO crops that it is supposed to be used with developed in the first place? Because the biotech companies ignored the basic principles of science when they developed the first generation of genetically engineered herbicide-resistant crops, called "Roundup Ready." The Roundup Ready crops allowed farmers to spray glyphosate on the fields during the growing season and kill the weeds, while leaving crops unharmed. Contrary to the principles of evolution and ecology, the biotech companies arrogantly assumed that nature could not accomplish what they had done in a lab, and that weeds would not become resistant to glyphosate even if it was repeatedly sprayed on a widespread basis year after year. But we now face an epidemic of "superweeds" that can withstand repeated glyphosate applications.

The logical response would be to recognize the fact that herbicide-resistant crops are not a solution, and to work on better ways to address weed control. But that doesn't make as much money as patented seeds and herbicide cocktails. So Dow created Enlist crops, designed to resist both glyphosate and 2,4-D working synergistically. Again, basic science tells us that the new GMO crops will simply cause the same destructive cycle of increasing herbicide-resistant weeds.

Although 2,4-D is already used on some crops, the approval of the Enlist Duo would have increased its use dramatically. Corn and soybeans—the crops engineered to be used with Enlist—are the nation's largest crops, and many non-GMO farmers have been scared that the widespread use of the 2,4-D mixture would destroy their crops.

There are some caveats, unfortunately. Some farmers are already in possession of Enlist, and it's unclear whether or not they will be able to use it. And, most worryingly, EPA has left the door open to re-approving Enlist in the future with increased requirements for buffer zones or

other restrictions on its use.

Even with those caveats, the decision by EPA to withdraw the illegally approved Enlist Duo crops is a significant victory for our farmers and the future of our food.

BAD NEWS: FDA APPROVES GENETICALLY ENGINEERED SALMON

Now for the bad news: despite insufficient testing and the vocal opposition of hundreds of thousands of concerned citizens, the FDA approved the GMO AquaBounty salmon just before Thanksgiving.

AquaBounty created this creature by inserting genes from one species of salmon and an eel-like fish called an ocean pout into the DNA of an Atlantic salmon. The goal was to produce a salmon that grows faster, to make farming the fish more efficient from a narrow cost viewpoint.

There are many reasons why approving GMO salmon is a terrible idea:

- It's been genetically engineered to produce growth hormones year-round, but there's been no real testing about what these increased levels of hormones will mean for the people consuming them.
- The FDA used the fiction that the genetically engineered salmon was actually a "drug," so that public participation in the approval process was severely limited. This is a problem not only for these salmon, but because it sets a precedent for the GMO animals that are likely to be proposed soon, including a GMO pig.
- The FDA's lax approval process included reviewing an AquaBounty study that only examined six salmon—which nonetheless showed a 20-50 percent increased allergenic potency.
- GMO salmon pose a threat to wild fish populations. Academic scientists found that GMO salmon readily breed with a different species of fish. And since they grow so fast, the non-GMO wild fish could easily be outcompeted and become extinct.
- Canadian government scientists also found that AquaBounty's salmon are more susceptible to disease-causing bacteria, which means that they will most likely be fed even

The FDA's lax approval process included reviewing an AquaBounty study that only examined six salmon—which nonetheless showed a 20-50 percent increased allergenic potency.

more antibiotics than typical farmed fish, threatening the health of those who eat them and the continued efficacy of these antibiotics to treat human disease.

As with GMO plants, the FDA is not requiring labeling for GMO salmon. However, there remains some hope. In response to consumer pressure, over sixty retail chains—including Costco, Kroger, Safeway, Trader Joe's, Target, and Whole Foods—have stated that they will not sell the GMO salmon.

ACTIVISM NEWS: INDUSTRY TRIES TO AVOID LABELING USING HIGH TECH BAR CODES

As the momentum for mandatory labeling of GMOs continues to grow—and as the deadline for the Vermont labeling law to go into effect draws near—biotech and major food manufacturers are becoming more desperate for a way to stop it. This summer, they were able to pass a bill in the U.S. House of Representatives to overturn state labeling laws and limit all GMO labeling to voluntary only. But the bill has stalled in the Senate because of the widespread grassroots opposition.

So what do you do if you're a huge corporation whose profits are threatened and your usual lobbying tactics aren't winning because the politicians are scared of the public backlash? You come up with a fake solution that gives your political allies cover with the public so they can give you what you want.

In this case, it's QR codes. What are QR codes? They're the square-shaped bar codes on some products that can be scanned with a smart phone, and an app then takes the buyer to the company's website.

But the use of a bar code or QR code is not a valid substitute for mandatory labels on food packages. Over a third of all Americans don't own smartphones and could not read such codes. And most of those who own smartphones are not familiar with QR code and wouldn't know that the information was available.


Moreover, QR codes are extremely burdensome for consumers. With on-package labeling, you can quickly find the information you need on the package—simple, fast, and practical. Under

the industry's proposal, the shopper needs to pull out his or her smartphone (while still holding the package of food), open up an app, wait for the camera to focus on the bar code, wait for a webpage to load, and then search the website for the relevant information.

QR codes do not provide any real cost savings, since food manufacturers will still have to track which products have GMO ingredients. The manufacturers' main argument against labeling is that it is supposedly too costly to segregate and track ingredients based on whether or not they are GMO—but that cost is no different, regardless of whether the information is then provided on an in-store physical label or through a QR code.

So why do it? Because the biotech and manufacturing companies know that most people won't realize the information is available in the QR code, much less go to the trouble of downloading the app, scanning the code and wading through their websites to find the information on GMOs. They will be able to claim that they have met the public's demands for information about GMOs, while still effectively perpetuating market fraud on unsuspecting consumers.

At the time this article goes to print, there are reports that the QR approach is dead in the Senate for this year. We can't be certain until Congress is recessed, however, and even then the companies will almost certainly come back early in 2016 with this or another end run around labeling. But if we can hold off federal government action until the Vermont labeling bill goes into effect in July 2016, the dynamics of the fight could change dramatically.

Please watch for action alerts and take the time to make the calls—your voice truly can make a difference. 

JOURNAL NOW AVAILABLE AS
A DIGITAL TALKING BOOK FOR THE
VISUALLY IMPAIRED

We now have our journal converted into an audio format for the visually impaired. Special software is required for this, such as Dolphin Easy Reader. Go to the JOURNALS tab on our home page. Starting with Fall 2011, click the journal you are interested in. Please tell others! Many thanks to Amy Adams of ePubUSA.com for this service!

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A Campaign for *Real Milk*

RAW MILK IN CALIFORNIA'S HUMBOLDT COUNTY, PART II

Cindy Ashy

A REVIEW OF PART I

Humboldt County is one of only three counties in California that currently ban the sale and production of raw milk. More than twenty-five hundred Humboldt County citizens have signed a petition to rescind this ban. Moreover, many citizens took the issue directly to the Humboldt County supervisors, requesting it be placed on the agenda. When the issue of the raw milk ban came up, it drew a large crowd of people to the supervisory meetings on both August 24, 2010, and January 11, 2011. Many public comments were made and the majority of people strongly urged the supervisors to rescind the ban on raw milk. Raw milk advocates also put together a thick packet of educational materials about raw milk and submitted this to the Board of Supervisors. However, this packet has since disappeared from the public record.

Several of the larger dairy farmers in the county were vocally opposed to lifting the ban on raw milk. However, some of the Humboldt County dairy farmers and other entrepreneurs have expressed a strong interest in producing certified raw milk should the ban be lifted. One of them has spoken out publicly and has the knowledge and experience needed to get a certified raw milk dairy into production within six to eight months. The Humboldt County agricultural commissioner and several officials in the Humboldt County Health Department urged the supervisors to maintain the ban on raw milk. In the end, the supervisors voted to leave the ban in place but also publicly stated they were open to hearing more from the raw milk advocates.

After investigating the situation in more depth, it appears that the bankruptcy of Humboldt Creamery and the sale of the dairy at auction to Foster Farms, may have been the most important driving force behind the supervisors leaving the ban on raw milk in place, but the purported reasons given by the supervisors were

“health concerns.”

For more details on the forces behind maintaining the ban and the drive to rescind it, see Part I in *Wise Traditions*, Fall 2015.

TESTIMONIALS

It takes courage to stand in front of a crowded room in a public meeting and talk about the details of your own personal health issues, especially when your testimony is being televised to the entire community and video archived! In fact, most of us probably couldn't do it under these circumstances. Remarkably, however, this is exactly what several Humboldt County citizens did at the Humboldt County Supervisor meetings held August 24, 2010 and January 11, 2011. Each in his own way, these brave citizens described their long-time health battles and how drinking raw milk had helped them overcome them when nothing else, including traditional medicine, had helped.

Here are some of these compelling raw milk testimonials:

NIEL GUNTON

“I'm not an activist or a representative of anybody. I'm just a consumer. I just want to make a couple of comments based on my own experience. My wife and I moved to Eureka last year from Medford, Oregon where I was able to obtain raw milk from a local farmer. And the reason I did that is I've had allergies my whole life, and particularly a post nasal drip which results in coughing and clearing my throat constantly, and it sounds silly, but it is actually quite a major impediment in your everyday life, when you're having to do that. And I found for the first time when we moved to Medford that I was able to get raw milk. I had done some research and found out that (pasteurized) milk in general causes more mucus production, and during my research I found out about raw milk, and so I tried it, and lo,



A Campaign for *Real Milk* is a project of the Weston A. Price Foundation. To obtain some of our informative *Real Milk* brochures, contact the Foundation at (202) 363-4394. Check out our website, RealMilk.com for additional information and sources of *Real Milk* products.

and behold, my allergies cleared up completely while I was on raw milk, and also my post nasal drip got much better. So, I'm just going from a purely pragmatic point of view since we moved down here whenever I try drinking even the organic local milk, I cannot sleep in my bed at night. I have to go sit up somewhere because if I lie down, the post nasal drip is so bad. And it is directly connected to (pasteurized) milk. I've not been able to buy raw milk since I have been here and that's a fairly big impact on my life."

DEEDRA THOMAS

"About ten years ago, I lived up here for six years and I just moved back a year ago but I did spend four years in Michigan where I was introduced to raw milk. I've had ulcerous colitis for twenty years and one of the things I can't have is (pasteurized) milk because I have the gas and the pain and all that and it aggravates the colitis. *But* when I drank raw milk I don't have those problems. And also with all the people who are allergic to milk or lactose intolerant, it's not necessarily the milk itself but the unnatural things that are being done to the milk or the cows that's causing the problems..."

SUSAN MOSKALY

"I've been living in Eureka since 2000. Raw milk came to my attention several years ago after becoming very very ill in 2002. I was eating the standard American diet and all of a sudden my digestive system just went haywire. I felt like I could not eat anything. It felt like my whole digestive system was coming to a halt. Whatever I ate I was allergic to. I was tired. I absolutely felt like I could not function anymore. I went to a million doctors. Nobody could figure out what was wrong with me. I spent thousands and thousands of dollars, had gall bladder surgery, nothing would help. Most people, when they get health problems where the traditional medical field can't seem to help them, they start turning to other areas, and I started doing research on the Internet and I came across this raw milk movement, and I went, "hmmm." People claimed to have had some wondrous results with their digestive systems so I did buy some (raw milk) from Organic Pastures (shipped in via UPS), and I tell you the truth, just like you probably, I

was scared to death to drink any of that. I was absolutely scared to death to drink any of this raw milk. I'd take a little sip and say, "Oh my God." I have to tell you when I started drinking (raw) milk, another reason I was scared is I used to get sick every time I would drink (pasteurized) milk. I would get constipated. I would get pains in my stomach. I would get gas. When I started drinking raw milk, none of this happened. And I have to tell you that since I added raw milk, and especially since I started seeing a doctor in San Francisco that actually prescribes raw milk, and I've added lots of probiotics eating pasture-fed raw egg yolks and other sources of probiotics like yogurt and sauerkraut, my digestion in the last four months has skyrocketed back to good health. It's the best it has been in eight years."

ALTERNATIVE HEALTH PRACTITIONERS SPOKE OUT TOO

Traci Webb, an ayurvedic practitioner and director of the Northwest Institute of Ayurveda in Arcata: "As an ayurvedic practitioner, I have been prescribing raw milk since 2002 as use for medicinal food and this began in Southern California in Orange County where raw milk sale and purchase was allowed. I've seen amazing, and what we might consider miraculous, benefits come from this very health promoting food. In Humboldt County I've been prescribing raw milk to clients on a daily basis. However, they have been having to purchase it out of the county, having it sent UPS to them for thirty dollars a gallon. This price is a little bit steep for some of these patients, especially since some of them are bed-ridden and disabled and aren't even employed currently, and they're relying on this food for their life and their well-being and their subsistence."

Dr. Scott H. Winkler, chiropractor in Arcata, Humboldt County, California: "I have been trained in what's been called alternative health but the difficulty with that is I think this is basic health as opposed to alternative health... one of the main problems with pasteurized and homogenized milk is it's basically a poison to the system."

In a 2015 interview, Dr. Winkler complained that people in Humboldt County were essentially being "forced" to buy pasteurized milk, and he

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described how it “messes up their biome.” He again emphasized that pasteurized milk is a poison to the system and stated unequivocally that he would recommend raw milk to his patients if the ban on raw milk were lifted.

CITIZENS DEMAND FREEDOM OF CHOICE

Many Humboldt County citizens have been very outspoken about the importance of being able to make their own decisions about what foods they consume. Here is what some of them said:

Kay Schaser of Eureka: “I wasn't even a raw milk drinker when this issue first surfaced. I got involved solely because I didn't think it was right for government to prevent people from drinking raw milk if they wanted to.” Schaser goes on to describe how she has now learned about the health benefits of raw milk and then states: “I asked you in a previous statement if you would stop trying to protect me from myself. I'm a big girl and I can make my own decisions.” Schaser received a hearty applause for this statement.

In another meeting, Schaser stated, “Why would you want to continue standing in the way of your health-conscious constituents who simply want to legally drink milk of their choice? Some decisions are hard. This one is a no-brainer. Rescind the ordinance and move on.”

Melissa Duey of Carlotta: “I'm a consumer and I do not want to be protected from myself. I find these regulations and statements offensive and demeaning.”

Shelley Bjork also of Carlotta: “I would like to say that food choices are health choices, and I believe that the profit motive and the pressures that are on the agricultural industry are not always directing things in the best interest of the individual consumer.”

Xandra Manns of Eureka first described how she had been drinking raw milk for decades and raised two kids on raw milk after reading an article about how pasteurization destroys the nutrients in milk. She then stated: “I was really disappointed when I moved to Humboldt and found I couldn't get raw milk, and I called a lot of the dairies to see if I could get raw milk from them. I found out they give their children raw milk to drink but we the public have to put up with pasteurized milk. I'm sure the county of-

ficials would just quake in their shoes if they saw what I do with raw milk. I feel like it's like any other food, like oysters or steak. We are allowed to buy these foods raw and do with them what we want. We can put raw beef in a dehydrator and make jerky. We are allowed to eat oysters raw or we can cook them. I mean, we're not stupid.” In a private interview later, Manns described how she makes yogurt and kefir from raw milk where the only source of heat is a heating pad.

Liz Lux said: “I've done more research on raw milk than anyone I know who drinks pasteurized milk. You'll find that in the raw milk-drinking community because we're passionate about our health. We're passionate about our rights to eat foods that we know are healthy.”

Susan Moskaly of Eureka: “I also have degrees in zoology and accounting from Ohio State so I'm a little bit educated, and so hopefully, I'm allowed to make my own decisions about things after a reasonable amount of research.”

Louis DeBart of McKinleyville, with a small gesture toward the county health officials who had recommended to the supervisors to maintain the ban on raw milk after citing the FDA and associated research, stated: “I'm looking at a different thing than you people; I'm looking at freedom.” DeBart went on to describe how he had grown up drinking raw milk in Del Norte County (the county directly north of Humboldt County) where his mother was a county nurse, and how they sold raw milk from their farm with no one harmed. DeBart then stated: “For God's sake, leave me the hell alone, I've got enough people telling me what to do and God bless you all.”

DeBart's candid sentiment has been echoed by multiple Humboldt County residents in private interviews. It is apparent that a significant portion of the population not only wants legal access to raw milk in Humboldt County for health reasons but they are also *angry* about the fact that this basic freedom, held by most Californians, has been taken away by a county ordinance.

Several citizens have expressed a strong desire to vote out any Humboldt County supervisor who does not vote to rescind the ban on raw milk or who tries to block or delay this important issue from being placed again on the official agenda. In fact, one person who is not yet registered to vote

Why would you want to continue standing in the way of your health-conscious constituents who simply want to legally drink milk of their choice?

is determined to register specifically to take on this issue. They also said they would encourage others to do the same.

FREEDOM OF CHOICE

The freedom to engage in entrepreneurship and produce healthy local foods that many citizens desire has been stifled in Humboldt County due to the ban on raw milk. Several citizens spoke out on this issue specifically:

Jessica Bittner of Bayside: “I believe in Humboldt County, we are progressive and concerned for freedom of choice for its citizens and those interested in promoting healthy, locally produced food. You may have heard from dairies that they have concerns but you may not have heard from some of the small local dairymen who are struggling for profitability and would welcome the chance to operate a grade A raw milk dairy right here in this county. So I ask for raw milk sales and production to be legal in Humboldt County, and I ask that you folks make the highest authority the already existing state legislation. This should be your highest authority.”

Mike Fragga, a dairyman in Arcata, expressed a strong interest in producing raw milk on this farm: “Milk inspectors have warned me that I can't even give the (raw) milk away. I can grow any crop on my farm and sell it but when it comes to (raw) milk, there's this ordinance.” In a 2015 interview, Fragga explained further that he has been told by inspectors that he could receive fines of one thousand dollars and actually go to jail if he sells, or even gives away, raw milk produced on his farm.

Daniel Pierce stated: “What you're doing too is you're stifling business. In India, they have this thing called paneer where you boil the (raw) milk and you add the lemon juice to it and you make a ball of cheese. It's fresh cheese. Nobody's making it here. You can't take a barrel of raw milk around to someplace and do that. You're stifling business and the reason this law was put in is because of what you heard here: we want all of your milk or none of your milk and that's big business and that's not fair. That has to change.”

Pierce's comment, “we want all of your milk or none of your milk,” referred to an earlier comment by one of the larger dairy farmers that

once a dairy farmer has a contract with Foster Farm's Crystal Creamery, formerly Humboldt Creamery, they would not be allowed to sell any portion of their milk to anyone else. This issue seems to be a key factor in perpetuating the ban on raw milk in Humboldt County.

Kay Schaser of Eureka (in a written statement read publicly by her nephew): “Why would you want to stand in the way of industry by preventing Humboldt County dairymen from entering a growing niche market? Why would you want to stand in the way of commerce by preventing Humboldt County retailers from selling an otherwise legal product that their customers are asking for?”

HOW GEOGRAPHY MAKES THE SITUATION EVEN WORSE

The geography of Humboldt County makes it really hard for a citizen to drive into another county to purchase raw milk. The county covers more than one hundred thirty miles from north to south on the main artery Highway 101. The population centers are located in the middle of this, right along the coast. For a resident living in Eureka, the largest city, the closest place to buy raw milk is the Wild Rivers Market in Crescent City, California. According to Google Map, this is a one-hundred-seventy-mile round trip taking more than three hours to complete!

So, for all practical purposes, this eliminates the possibility of purchasing raw milk in another county for most of the Humboldt County population! Thus, the *only* way these citizens can obtain raw milk legally with reasonable logistics involved is to have it shipped to them via UPS from Organic Pastures. Unfortunately, the shipping charge more than doubles the total price when shipped directly to the consumer!

It should be noted that according to Tom Boylan, the store manager of Wild Rivers Market, some Humboldt citizens are so desperate for certified raw milk, they actually do make the more than three-hour trek to purchase raw milk, most often a case at a time. Each case contains four gallons of Organic Pastures raw milk. Before making the long trip, customers are encouraged to call ahead to make sure it's still in stock, because they often sell out of it. They drink one gallon immediately but are forced to freeze the other three gallons to prevent spoilage. Although frozen raw milk is better than no raw milk, it is certainly not an optimal situation, especially after going to so much trouble to obtain it.

In contrast, for citizens living in Kings County California, where raw milk is also banned, the largest density of people live in or around Hanford. From there, it is only a fifteen-to-twenty minute drive into Visalia (Tulare County) to purchase certified raw milk legally.

ONLY FOR THE RICH?


At the end of his public statement, Niel Gunton pointed out that he could have raw milk shipped via UPS from Organic Pastures but it was very expensive to do so and simply too costprohibitive for most people: “I think it's weird that I am actually able to buy organic milk from Organic Pastures at thirty to forty dollars per gallon (including shipping), and I think that is very biased toward the people who have the money to do that. I think that everybody should be able to buy this thing at the normal local rates from companies that are able to buy it in bulk, like the co-op

or Eureka Natural Foods, because individuals cannot afford to pay thirty dollars per gallon but Eureka Natural Foods or the co-op could afford to get this stuff in at the bulk rate.”

For the record, according to a telephone representative at Organic Pastures in August 2015, to ship one gallon of raw Organic Pastures milk to Eureka California, the total cost would be \$39.66. However, \$27.66 of that total cost includes the UPS shipping charge for the weight of a gallon of milk plus three ice packs to keep it cold. Thus, the price of the raw milk itself is only twelve dollars per gallon, affordable for most people who put a priority on their health. Also, according to Mark McAfee, the owner and founder of Organic Pastures, the retail rate for a gallon of Organic Pastures milk usually ranges between twelve and sixteen dollars.

It is also important to note that raw milk can be purchased with food stamps from retail stores in all of California using a CalFresh EBT card except in the three counties that have banned raw milk. However, raw milk cannot be purchased with food stamps directly from Organic Pastures. This means that the poorest individuals and families in Humboldt County have no legal access to raw milk, even if their health practitioner has recommended it to improve their health.

One has to wonder whether the Humboldt County supervisors have seriously considered all the hardships put on their constituents who need and want raw milk to heal their body and maintain their health. One also has to wonder whether the Humboldt County supervisors truly understand the entrepreneurial spirit of Humboldt County farmers and consumers who

want to support locally produced goods. It will be interesting to watch how this plays out in the next two election cycles. 

Cindy Ashy is a freelance writer living in northern California. Trained as a biologist, Ms. Ashy's specialties include natural health, the natural world, cutting edge science, and investigative journalism. She can be reached at (360) 325-1081.

REFERENCES

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RAW MILK CHEESE AS SAFE AS PASTEURIZED

The Weston A. Price Foundation (WAPF) has filed comments urging the U.S. Food and Drug Administration (FDA) not to place unnecessary burdens on producers of raw milk cheeses.

Raw milk cheeses, made from milk that has not been pasteurized, have been consumed for millennia and are prized worldwide for their rich, unique flavors. For example, under European law, the famous Parmigiano Reggiano can only bear that name if it is produced from raw milk.

In August, the FDA issued a notice inviting public comments on the topic of “potential intervention measures to reduce the risk of foodborne illness” from raw milk cheeses. “Unfortunately, the FDA is starting with an incorrect assumption, namely that more regulations would benefit consumers of raw milk cheeses,” stated Sally Fallon Morell, president of the Weston A. Price Foundation and a cheesemaker herself. “But the government’s own data show that there have been very, very few outbreaks from raw milk cheeses produced under the current regulations. Imposing additional testing or lengthening the aging period would simply drive many artisan producers out of business and reduce consumer choices.”

As set out in WAPF’s comments to FDA, most of the outbreaks attributed to raw milk cheeses have actually come from fresh (unaged) cheeses, which it is illegal to sell in this country. New regulatory requirements would be futile in addressing the risks from fresh cheeses. The WAPF comments include an extensive review of the scientific literature on raw milk cheeses, including comparisons between the safety of raw milk cheeses and pasteurized milk cheeses.

“Cheese in general is a relatively low-risk product, and the majority of the foodborne illness outbreaks that do occur are caused by post-process contamination,” explained Ms. Fallon Morell. “The scientific studies show that the diverse community of microorganisms in raw milk cheese effectively limits the growth of pathogenic organisms, and thus post-process contamination is actually a greater risk in cheeses made from pasteurized milk.”

“All cheese makers should take reasonable measures to address food safety,” concluded Ms. Fallon Morell. “American raw milk cheese makers already comply with extensive regulations in order to produce this product, which thousands of consumers want. The science and CDC data are consistent with millennia of human experience: aged raw milk cheese is a safe, delicious, nutrient-dense food.”

WAPF’s full comments are available on the Federal Register website at westonaprice.org/press/raw-milk-cheese-as-safe-as-pasteurized/.

MARYLAND – RAW PET MILK SALES LEGAL

Raw pet milk sales are now legal in Maryland, one of the most anti-raw milk states in the U.S. A grass-based dairy, P.A. Bowen Farmstead of Brandywine, has obtained approval¹ to sell raw pet milk from the Maryland Department of Agriculture. P.A. Bowen Farmstead, owned and operated by Weston A. Price Foundation president and FTCLDF board member Sally Fallon Morell and her husband Geoffrey, has begun selling raw milk at its on-farm store.

The sale of raw milk for human consumption has long been illegal in Maryland. In 2006, the Maryland Department of Health and Mental Hygiene (MDHMH) issued an emergency regulation banning herdshare contracts; a court challenge to the herdshare ban was unsuccessful. The U.S. Food and Drug Administration (FDA), the center of opposition to raw milk in this country, has its headquarters in Silver Spring, Maryland, and major offices in Rockville and College Park. In 2012 FDA obtained an injunction from a federal district court preventing Pennsylvania farmer Dan Allgyer from shipping raw milk and raw milk products in interstate commerce; he was selling raw dairy products to a Maryland-based buyers club. FDA undercover agents obtained raw milk at the private homes of club members to build the case against the farmer.

There have been numerous attempts over the years to pass legislation legalizing the sale or distribution of raw milk for human consumption but delegate Peter Hammen, the chairman of the Maryland House of Delegates Health and Government Operations Committee, has been able to stop all raw milk bills from getting out of his committee.

As far as is known, the Maryland Department of Agriculture had never approved the sale of raw pet milk by a Maryland producer; it had approved a Pennsylvania dairy and a California dairy, which are still selling raw pet milk in the state. Maryland now joins other states such as Florida, Georgia, Indiana and North Carolina in allowing the sale of raw milk for animal consumption.

Despite the state's regulatory ban on banning herdshare agreements, there is still a possibility that farmers and dairy livestock owners would be able to enter into a legal herdshare contract. In a 2009 opinion rejecting a challenge to the herdshare ban on the facts of the case before it, a Maryland appellate court in its decision stated:

1. It is not illegal in Maryland for the owner of a dairy cow to drink the raw milk which that cow produces;
2. It is not illegal in Maryland to sell a fractional interest in a herd of dairy cattle; and
3. It is not illegal in Maryland for an agister to provide agistment services by boarding and caring for dairy cows owned by others.²

“Agister” is a legal term for someone who provides services for the boarding and care of livestock.

There are now less than ten states that prohibit any sale or distribution of raw milk for human or animal consumption. Watch for updates of the Raw Milk Nation map.

MEMBERSHIP IN THE WESTON A. PRICE FOUNDATION

Thank you for your membership and for encouraging others to join! Your membership fees support these many projects:

- Hosting and maintaining our huge website
- Publication and mailing our lively and informative quarterly journal
- Printing brochures and Healthy 4 Life booklet
- Legislative work and updates by Judith McGeary
- Financial support to the Farm-to-Consumer Legal Defense Fund
- A registered nurse on call to answer baby questions
- Phone and email correspondence to answer countless inquiries
- Action alerts sent for events and legislative issues
- Raw milk project for education and access
- Registration fees and materials for over one hundred exhibits per year
- Research on traditional foods and the fat-soluble activators
- Maintaining the WAPF office and four paid employees
- Shopping Guide research and publication
- Hosting conferences, posting on Facebook and blogs
- Soy prison lawsuit; soy petition to FDA
- Advertising in other publications
- A publicist doing press releases and arranging media interviews
- Future restaurant rating project

Congratulations to Sally Fallon Morell for breaking new ground in Maryland and for taking a significant step towards the legalization of raw milk for human consumption. At least two other Maryland farms have since obtained permits to sell pet milk and we expect many others to join the list.

1. The way the approval process works in Maryland is that a producer interested in selling pet milk files an application and a label for registration of the product with the Office of the State Chemist, a division of the Maryland Department of Agriculture. If the State Chemist approves the application and label, then the applicant is officially registered and can start selling the product.
2. Kevin Oyarzo v. Maryland Department of Health and Mental Hygiene et al, 187 Md. App. 264, 268 (2009).

FEDERAL – OPDC CITIZENS PETITION FOR RAW BUTTER

The Farm-to-Consumer Legal Defense Fund has agreed to represent Organic Pastures Dairy Company (OPDC) over OPDC's citizens petition to modify the interstate ban on raw butter. FTCLDF general counsel Gary Cox will be representing McAfee. The petition filed by OPDC founder and president Mark McAfee requests that "salted or cultured raw butter that is tested, state inspected, state regulated, carries a 'government approved warning statement', and labeled for retail sale in one state may be transported to another state if that other state allows the sale of unpasteurized dairy products." McAfee had previously filed a petition to modify the interstate ban on raw milk but had abandoned that effort shortly after FDA rejected his petition in 2013 (see *Wise Traditions* Spring 2013).

OPDC filed the raw butter petition on March 2, 2015 and has yet to receive an answer from FDA; under federal law the agency has six months to submit a response to a citizens petition.

With the evidence provided in the petition it is difficult to see how raw butter could ever have been banned in interstate commerce. In response to the Freedom of Information Act (FOIA) requests filed by McAfee, neither the California Department of Public Health (CDPH) nor the California Department of Food and Agriculture (CDFA) could find a single case of foodborne illness being attributed to raw butter consumption; CDPH's search went back 20 years while CDFA's search went back 40. Further, according to the petition, "the CDC has no outbreaks, no cases of illness or death recorded in its databases related to commercially produced raw butter illness or pathogen defects." The petition claims there is only one foodborne illness outbreak linked to non-commercially made butter. The petition points out that during the court case leading to the ban (*Public Citizen v. Heckler*), "there were no illness or evidence of risk presented on raw butter" and that the case actually involved only raw milk.

McAfee also filed a FOIA request with FDA asking for any data or information on raw butter consumption being linked any case of human illness but has not received an answer.

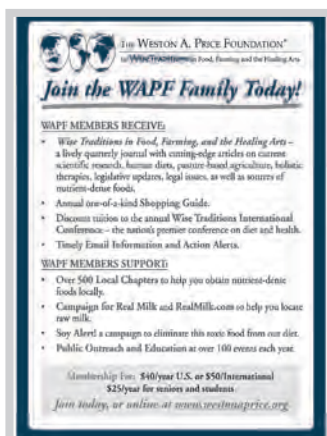
There is much at stake in the case; there are around 30 states that allow the sale of raw dairy products (usually milk and cheese aged 60 days). Most of these states do not allow the sale of raw butter, meaning that—if the petition were to be successful—there would be access for many consumers who currently cannot obtain it. The granting of the petition could also spur state legislatures to pass laws legalizing the sale of butter and other raw dairy products. It will be interesting to see what defense FDA has for banning a product that has a better track record for food safety than most "legal" foods. FTCLDF will be providing updates on the case as events warrant.

MEMBERSHIP POSTER

Membership is the main source of financial support for the many projects of the Weston A. Price Foundation. We appreciate your help to increase membership. We are happy to send a free copy of our membership poster to those who will display it.

The poster is 8.5" x 11" with a cardboard flap that allows it to stand. It goes well with our Dietary Guidelines booklet. It can be displayed at an exhibit, a doctor's office, a library, a farmers market, etc.

If you will display it, please write for a free copy: info@westonaprice.org.



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A VOICE FOR CHOICE

California's A Voice for Choice opposes mandatory vaccines and educates the public on their dangers. President Christina Hildebrand helped coordinate the forces opposing SB 277 in California. The group hired a lobbyist, supported CDC whistleblower efforts, created a physician protocol for vaccine risk screening, worked to identify and support a legal defense team to fight SB277 in court, conducted a large-scale state-of-health research project to identify the relationship between chronic diseases and toxins including research of the vaccinated vs unvaccinated population, hindered legislative efforts to bring forward further mandates, researched the best way to overturn the 1986 National Childhood Vaccine Injury Act, and supported constitutional ballot initiatives which specifically strike all medical mandates. Christina was a winner of the 2015 WAPF Activist Award.

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WASHINGTON, DC CHAPTER
VISITS P.A. BOWEN FARMSTEAD

Chapter leader Hilda Gore (center) with her enthusiastic group during a visit to P.A. Bowen Farmstead for a tour and catered lunch.

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CHAPTER RESOURCES

Resources for chapter leaders can be accessed at westonaprice.org/local-chapters/chapter-resources, including our trifold brochures in Word format, chapter handbook, and PowerPoint presentations.

LOCAL CHAPTER LIST SERVE

Thank you to Maureen Diaz a chapter leader in Pennsylvania, for administering the local chapter chat group. New chapter leaders can sign up at <http://groups.yahoo.com/group/wapfchapterleaders/>

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WAPF AT THE BABY EXPO

Diane Smith, chapter leader for White Bear Lake, Minnesota, runs the WAPF booth at the Baby Expo in Minneapolis. She found lots of interest from expecting moms regarding Weston Price and raw milk. The bottle of raw milk on the exhibit table was a great way to draw a crowd. At the right, an unattended doctor's booth, strewn with candy.



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LOCAL CHAPTER BASIC REQUIREMENTS

1. Create a food resource list of organic or biodynamic produce, milk products from pasture-fed livestock (preferably raw), pasture-fed eggs and livestock and properly produced whole foods in your area.
2. Provide a contact phone number to be listed on the website and in our quarterly magazine.
3. Provide Weston A. Price Foundation materials to inquirers, and make available as appropriate in local health food stores, libraries and service organizations and to health care practitioners.
4. Provide a yearly report of your local chapter activities.
5. Be a member in good standing of the Weston A. Price Foundation.
6. Sign a contract on the use of the Weston A. Price Foundation name and trademark.

OPTIONAL ACTIVITIES

1. Maintain a list of local health care practitioners who support the Foundation's teachings regarding diet and health.
2. Represent the Foundation at local conferences and fairs.
3. Organize social gatherings, such as support groups and pot luck dinners, to present the Weston A. Price Foundation philosophy and materials. Price
4. Present seminars, workshops and/or cooking classes featuring speakers from the Weston A. Price Foundation, or local speakers who support the Foundation's goals and philosophy. tion,
5. Represent the Weston A. Price Foundation philosophy and goals to local media, governments and lawmakers.
6. Lobby for the elimination of laws that restrict access to locally produced and processed food (such as pasteurization laws) or that limit health freedoms in any way.
7. Publish a simple newsletter containing information and announcements for local chapter members.
8. Work with schools to provide curriculum materials and training for classes in physical education, human development and home economics.
9. Help the Foundation find outlets for the sale of its quarterly magazine.

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WAPF HELPS SPONSOR HOMEOPROPHYLAXIS CONFERENCE

WAPF was a major sponsor of the first worldwide Homeoprophylaxis (HP) Conference October 2-4 in Dallas, Texas.



The conference featured homeopathic alternatives to vaccinations. Pictured here are the illustrious speakers. Back row: Andy Wakefield, Harry vanderZee, Isaac Golden, Robert Scott Bell. Front row: Cathy Lemmon, Cilla Whatcott, Neil Miller, Alan Phillips. (Not shown: Tetyana Obuchanych.)

The first HP had one hundred fifty in attendance and nine exhibitors. The speakers were very well received, and everyone thoroughly enjoyed the networking and association with the group. WAPF public relations correspondent Kim Hartke helped publicize the event.

Says organizer Cilla Whatcott, "To be able to say that WAPF is a sponsor has been an honor and a wonderful benefit to be associated with such an organization. My deepest appreciation goes out to you!"

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NETHERLANDS Amsterdam-Alkmaar-Beverwijk: Iris Maier 31 625 181 424, industriouiris@gmail.com
Limburg: Tanja Stevens 061 6474 192, info@gezondgestel.nl, <http://limburg.westonprice.nl/>
Nijmegen: Mike Donkers 31 6 4275 3107, westonpricegelderland@gmail.com, gelderland.westonprice.nl
National forum: www.westonprice.nl

NEW ZEALAND Auckland, North & West: Alison Ellett (09) 420-8548, alison@wapf-auckland.co.nz, www.wapf-auckland.co.nz/
Auckland, South & East: Caroline Marshall 64 9 528 7062, caroline@culturedkitchen.co.nz
Christchurch: Carolyn-Rae 03 967 1040 or 0272733187, thrive@xnet.co.nz, www.bealivethrive.nz
Dunedin, South Island: Michelle Wilkie 064 3 488 6061, chellec@clear.net.nz
Hamilton: Marea Smith 07 8501587, wapfhamilton@gmail.com, <https://www.facebook.com/WAPFHamiltonNZ>
Hawkes Bay: Phyllis Tichinin 64 6874 7897, phyllis@truehealth.co.nz
Nelson City & Tasman District: Samantha Gentry 0274505940, sam.gentry@desirefitness.co.nz
New Plymouth: Ian Haldane 06 659 7478, zenian@zenian.co.nz
Palmerston North: Susan Galea 646 324 8586, susangalea@hotmail.com, www.realmilk.co.nz
South Canterbury: Carol Keely 03 6866 277, bckeely@outlook.com & Inez Wilson inezmwilson@xtra.co.nz
Wellington: Ian Gregson 64 04 934 6366 wapf@frot.co.nz & Deb Gully (04) 934 6366, deb@frot.co.nz, www.wapfwellington.org.nz
NZ Resource List: Ian Gregson and Deb Gully, www.frot.co.nz/wapf/resources.htm

NORWAY Oslo: Kim Orderud, DC & Ingerlise Wingard (+47) 97772564, kimorderud@hotmail.com

PAKISTAN Punjab: Shagufta Feroz & Feroz Sharfuddin 92-321-8439362, drsferoz@gmail.com

PHILIPPINES Metro Manila: Tess Young 63 917 357 7278, livingfoodsbc@gmail.com, <http://chapters.westonaprice.org/metromanila/>, livingfoodsbuyingclub.com

International Chapters

POLAND

Pokrzydowo: Adam Smiarowski 0 11 48 606 209914, szkolaryciska@gmail.com

PORTUGAL

Algarve: Julia de Jesus Palma (00351) 912320437, Julia@onlinedesign.info
Porto: Hugo Dunkel Matos Couto e Neiva 00 351 914338761, hugo.dunkel@gmail.com

PUERTO RICO

Caguas: Rocio Lopez, MD (787) 502-0607, lopezrmd@gmail.com

ROMANIA

Ilfov: Raluca Schachter 0736 364 687, ralucaschachter@live.com, <http://chapters.westonaprice.org/snagovrm/>

SCOTLAND – see United Kingdom

SLOVENIA

Soca Valley: Vesna Veliscek 00386 41 432 488, vesna@slocally.com, www.slocally.com

SOUTH AFRICA

Cape Town: Pierre Morton 27 71 6056 772, jubywho@gmail.com

SPAIN

Madrid: Ana de Azcarate 0034-616821039, aquilina68@yahoo.com

SWEDEN

Eskilstuna: Nikola Lucaj 4673 1003 141, nikolalucaj@gmail.com
Stockholm: Johanna Gunnarsson 46 76 040 7927, Johanna@stockholmnt.se

SWITZERLAND

Bern: Judith Mudrak rohrmilchjudith@gmail.com
Geneva: Lauren Haddad-Olivet 41 76 695 60 00, lauren.haddad@gmail.com

UNITED KINGDOM

ENGLAND

Buckinghamshire: Sheila Sheppard 44 7799 132999 01908 605818, sheila@nutribaby.co.uk
Cheshire: Carol Dines & Silvie Hall, 01270 873322 wapf.cheshire@outlook.com, <https://www.facebook.com/WAPF.Cheshire?ref=hl>
Derby: Russell Davison 01332 737216, Russell@davisonproperty.co.uk
Herefordshire: Sally Dean 01432 840353, sally@aspenhouse.net
Kent: Keli Herriott-Sadler 01732 354 527, keli@herriott-sadler.co.uk
London: Philip Ridley philridley@hushmail.com, <http://chapters.westonaprice.org/londonuk/>
Wise Traditions London, Festival for Traditional Nutrition Phil Ridley 01442 384451, westonaprice.london@gmail.com,
www.westonaprice.org/london, www.meetup.com/westonaprice-london
East London: Deborah Syrett 020 8518 8356, medical.herbalist@ntlworld.com
Nottingham, East Midlands: Claire Jessica Backhouse 0044 79 8046 2874, claradynamic@hotmail.com
Surrey and Hampshire: Diana Boskma 44 1252 510 935, dboskma@gmail.com
UK resource list: www.naturalfoodfinder.co.uk

SCOTLAND

Edinburgh: Frances Bavin 07505 053333, frances.bavin@gmail.com, <http://www.meetup.com/westonaprice-edinburgh>

WALES

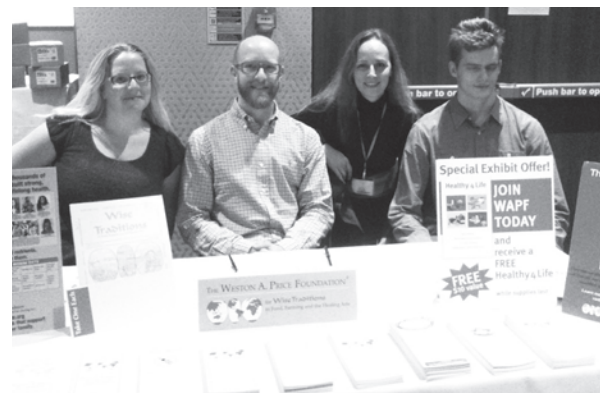
North Wales: Ben Pratt 07952 555811, info@naturalfoodfinder.co.uk, www.naturalfoodfinder.co.uk

WAPF AT HEALTH UNPLUGGED IN LONDON

Katalin Nagypal, WAPF chapter leader from Hungary, represented WAPF at a booth during the HEALTH Unplugged conference in London, October 31-November 1. She and her booth volunteers met a lot of nice people sharing the same mindset of health and wellbeing based on Nature's prescription. Says Katalin, "It was really a great audience for WAPF, and many people were coming up and requesting information."

From left to right: Faye Dawson (from UK), Wolfgang Haak (from UK), Katalin Nagypal Kokavecne (from Hungary), and Matthew Messer (from Hungary).

In December, Katalin will represent WAPF at a local natural foods Christmas market in Budapest, Hungary.



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100% grass-fed, grass-finished beef. On pasture year-round at the family ranch in WY. Production practices detailed on our website. Custom beef, Farmers markets, and Food Co-op in Fort Collins. meadowmaidafoods.com, (307) 534-2289.

DC

CSA: Hi-Brix, nutritionally dense, biodynamically grown kitchen vegetables, grass-finished beef, pastured pork, broilers & eggs. Openings for 2015 season in DC Metro area. Contact Allan Balliett, info@freshandlocalcsa.com (304) 876-3382, freshandlocalcsa.com.

FL

100% grass-fed dairy and beef. Soy-free woodland pork. Soy-free pastured broilers and eggs, fermented foods, info@marandofarms.com.

MA

Many Hands Organic Farm in Barre, MA. Produces certified organic lard from pasture-raised pigs fed Nature's Best Organic Feeds, whey and pasture. \$20/quart in yogurt containers. **We ship** in the U.S. Order at mhof.net/meat/index.php. (978) 355-2853; farm@mhof.net.

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100% soy-free chicken, eggs, pork and beef. Chicken livers, chicken feet and heads. Bacon and sausage. Raw milk Blue and Cheddar cheese by cheesemaker Sally Fallon Morell. **Will ship whole cheese wheels.** Southern Maryland, within 1 hour of downtown Annapolis and Washington, DC. Saturday farm tours. Store open Thurs-Sat 10-6 or by appointment. P. A. Bowen Farmstead, 15701 Doctor Bowen Road, Brandywine, MD. (301) 579-2727, pabowenfarmstead.com.

Grass-fed Angus beef (no grain), free-range eggs, pastured chicken & turkey. Liver, chicken feet, organ meats & bones, food grade heritage grinding corn. Pick up Potomac or Buckeystown. Our cattle & poultry are always on organic pasture & receive all organic feed, no hormones, antibiotics, or animal parts. We grow our own hay & grains & grind our own poultry feed. Quality organic products since 1979. (301) 983-2167, nicksorganicfarm@comcast.net, nicksorganicfarm.com.

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Come to our peaceful family farm—your source for premium pasture-raised chicken, turkey, eggs, 100% grass-fed lamb, and raw honey! Poultry fed organic feed. Less than 1 hour from DC metro area in southern Frederick County, MD. JehovahJirehFarm.com (301) 874-6181.

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HarvestBox.com is a better way to eat. Our Farms. Your Family. Free Delivery in 48 States. Offering select meat bundles like Grass-fed Beef, Wagyu Beef, Salmon, Free-range Pork and Chicken. A new way to connect you to the farm that raised your meat.

MN

Farm On Wheels offers animals raised green grass-fed & certified organic. Nutrient-dense beef, lamb, chicken, eggs, turkey, goose, duck, and pork, No corn or soy. Farmers Market year around in St. Paul, Prior Lake, Northfield. Linda (507) 789-6679, farmonwheels.net, farm_on_wheels@live.com.

OH

Sugartree Ridge Grassfed. Openings in a 100% grassfed herdshare with nine delivery sites in the Cincinnati area. No grain, no silage. Sixteen cows (cross between Jerseys, Guernseys, Brown Swiss and British White) grazed year-round on sixty acres rotating through thirty paddocks (which are allowed to grow for sixty days between grazings and are spread with organic, Albrecht-based mineral supplements). Nutrient-dense milk, family-friendly farming and holistic stewardship. 6851 Fair Ridge Road, Hillsboro, OH 45133 or Cincinnati area: Bill & Marylou Wilson (513) 625-0197.

OR

Windy Acres Dairy. Herd share providing grass-fed raw milk, cream, cultured butter, sour cream, kefir, yogurt, plus marketing of livestock (soy-free beef, lamb, pork, turkey, chicken) eggs, honey and by-products. windyacresdairy.com, windyacres26@gmail.com for more information or call (541) 613-5239

PA

100% Grass-fed Beef, Pasture-raised pork, chicken, eggs. All meat is GMO-free with no added hormones or antibiotics. Beef quarters and whole hogs available, as well as retail cuts. On farm sales: Peaceful Valley Farm, 2019 State Route 17, Millerstown PA 17062. No Sunday calls: (717) 444-0022

Bareville Creamery 100% grass-fed. We offer raw traditionally cultured butter from our grass-fed cows. **We will ship** to you or visit our farm to pick up. Daniel & Katie Zook, Leola, PA (717) 656-4422.

Fresh grass-fed raw milk, cream, butter, yogurt & cheese - veal, soy-free poultry, free-range eggs, grass-fed beef and lamb. Frozen meats also available. **We will ship.** You are welcome to stop in or give us a call. Mark & MaryAnn Nolt (717) 776-3417.

Grass-fed lamb, pastured Tamworth pork & piglets, pastured chicken, honey, Sheep Camp, farm tours, Adopt-A-Sheep & more. Visit Owens Farm Sunbury, PA, owensfarm.com (570) 286-5309, info@owensfarm.com

We have raw butter from 100% grass-fed cows. **We will ship** or you stop by. Also non-GMO and soy-free pork. Henry and Fanny Zook, Bethel, PA (717) 673-6365.

Raw milk cheese from our grass-fed Jerseys, made on our family farm with Celtic sea salt. No grain feed. Also grass-fed beef and pastured chickens, turkeys and eggs. All soy-free, no hormones or synthetics. On-farm sales, **will ship cheese.** Wil-Ar Farm, Newville, PA (717) 776-6552.

Raw milk for sale and hard cheese. Specializing in A2-A2 milk. Other dairy products also available through buying club. Also, free range brown eggs, non-gmo chickens, and Thanksgiving turkeys. Located in central PA, 1 mile off interstate 80. For more information call (570) 726-4332 ext. 2.

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Wentworth Dairy. Grass-fed raw milk, raw milk cheese, free-range eggs, pastured pork, grass-fed beef. We are located 8 miles from MD state line. Family farm, all natural grass-based, Ayrshire and Jersey cows. Rob & Bonnie Wentworth, 1026 River Road, Quarryville, PA 17566, (717) 548-3896.

WI

All natural, grassfed, to excite your taste buds, beef, pork, turkey, chickens and eggs; **will ship**. Located in the driftless area of Wisconsin Pleasantviewfarmswi.com (608)553-0787 Email mkhamann86@gmail.com.

WY

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CRAFTS

Beautiful crafts by local artists. Keep your gift-giving dollars in the USA. Alpaca blankets, socks and yarn; hand painted decorations, paintings by a ward-winning artist Megan Pisciotto Greene; handmade quilts. Exclusive source of *Nourishing Traditions* posters. Saturday farm tours. Store open Thurs-Sat 10-6 or by appointment. P.A. Bowen Farmstead, 15701 Doctor Bowen Road, Brandywine, MD. (301) 579-2727, pabowenfarmstead.com.

DVDS

DVD "Nourishing Our Children" recently launched a DVD that may be used for one's self-education or to present to an audience. You will learn how to nourish rather than merely feed your family. nourishingourchildren.org/DVD-Wise.html **Free shipping!**

The greatest fine art of the future
will be the making
of a comfortable living
from a small piece of land.

Share your passion for food with friends and family! The Diet for Human Beings affirms our human requirement for fats, with less emphasis on starchy carbs. "An Hour To Watch – 30 Days To Try – Your Life Will Never Be The Same" ondietandhealth.com.

EMPLOYMENT OPPORTUNITIES

Mesa Farm Market, located 12 miles from Capitol Reef National Park in central/southern Utah, needs a farm manager. The current manager is retiring. This is a wonderful long-term opportunity for a person or persons truly interested in a healthy and sustainable lifestyle. Pastured goats, raw milk, cheese, eggs, chickens, pigs, organic produce, orchard, fermentation, artisan sour dough bread etc etc. Small market on site and other business opportunities available. Infinite opportunities. For more information see mesafarmmarket.com; facebook.com/pages/Mesa-Farm-Market/259163903354?ref=hl or mail us at mesafarm@mesafarmmarket.com

WAPF-Inspired Fine Dining Restaurant Now Recruiting Talent. *Farmageddon* filmmaker, Kristin Canty is hiring talent for her new venture, Woods Hill Table, a traditional foods restaurant in her home town of Concord, MA. To our knowledge, this is the first-ever WAPF inspired fine dining restaurant. From frying in beef tallow, soaking grains, and raw fermented foods to serving kombucha flavor of the day on tap, Kristin is implementing the WAPF dietary guidelines and changing restaurant history. If you'd like to be a part of this exciting culinary project, her Concord Restaurant Group is looking for a service manager, servers, reservationists, chefs and line cooks. Contact Kristin@woodhilltable.com 24 Commonwealth Ave, Concord, MA, 01742 woodhilltable.com, jobs@woodhilltable.com, (978) 369-6300.

HEALING ARTS

Healing Through Food, Gardening, Herbs & Ceremony June 26-28, 2015, with Michelle Vesser, Occidental Arts and Ecology Center. Explore in our beautiful Gardens; Food as Medicine, Medicinal Herbs, Practical/Spiritual Gardening, and the work of Weston A. Price oaec.org, (707) 874-1557

Integrative Diagnosis (ID) was developed by John Kozinski MEA to help you understand your overall health condition so traditional foods can be used for your healing or health maintenance needs. For ID Classes or a Health Consultation call: 413-623-5925 macrobiotic.com.

HEALTHY PRODUCTS

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KEFIR: Making kefir at home just got easier with KEFIRKO! This innovative new tool from Europe allows you to culture and strain your milk or water kefir grains with ease. And the community at KEFIRHOOD.COM will connect you with others in your area who have kefir grains to share! To learn more about KEFIRKO, visit kefirko.com.

VITACLAY Chef Smart Organic Multi-cooker. No lead, no aluminum, no chemicals. Makes perfect germinated rice, quinoa, savory stews, soups and nutritious bone broths or steamed fish or veggies. Plus Bonus low temperature yogurt maker! "Meals are super flavorful and nourishing because VitaClay seals in the beneficial nutrients and enzymes with an ancient secret—organic unglazed Zisha Clay." —Mike Fenster, Cardiologist/ Professional Chef/ Author, VitaClayChef.com or call (408)329-7392.

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EcoDream home. 3.25 acre organically gardened, wooded property backs to protected watershed with hiking/equestrian trails. Keep animals or walk to boarding stable. Modern log home, must-see kitchen, 3BR, 3BA, finished basement, wood stove, decks, stone patio. Rockville, Maryland, 15min. from Shady Grove Metro red line. City convenience, country farmette feel. \$550K Call Michelle (301) 330-4428. Member WAPF

INTENTIONAL COMMUNITY

Farm family or individual needed to help set up and live on pristine 164 acre former raw dairy farm and cheese making facility in SW Washington state. If interested, please send email to Lawren@wellaroo.com with "dairy farm" in the subject line.

Small farm near Tampa FL looking for others to partner with us in our farming efforts. Have detailed ad in Eager Farmer, eagerfarmer.com and listing in www.ic.org under Ecofarmfl Tampa FL. Small dairy (water buffalo), pigs, vegetables, cane syrup, and other sustainable, permaculture related farming ventures. Direct farm sales. ecofarmfl@yahoo.com, (813)754-7374.

INVESTORS NEEDED

"Get An Oil Change" is a documentary film showing one nutritionist's vision for a population to embrace once again the coconut – essentially, for the people of the Cayman Islands to change their oil in order to change their health. Sally Fallon Morell is featured in it. Check out the Facebook page, Facebook.com/GetAnOilChange, as well as the Vimeo teaser vimeo.com/118666649. You can make a contribution by "tipping" us using the tip jar on the Vimeo page.

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Certified Electromagnetic Radiation Specialist creates Safe Havens in a toxic electromagnetic world. We measure your EMF risk levels and provide solutions. Dirty Electricity, Magnetic & Electric Fields, Microwave Radiation, Body Voltage. Eric Windheim, BA, EMRS WindheimEMFsolutions.com

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Thomas Jefferson

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WAPF RESEARCH

STUDY ON HEALTHY BABIES: Johanna M. Keefe, MS, MA, AHN-BC, RN, GAPS, certified as an Advanced Holistic Nurse, is seeking volunteers for a PhD research project in Transformative Studies through CIIS (California Institute for Integral Studies). If you have had a healthy baby using the WAPF dietary guidelines, she would like to hear from you. She would like to interview you by Skype or Facetime, or in person if you are located in New England, Northern California or North Carolina—or at the annual conference in November. Contact: johanna@enhancedwellnessbythesea.com, (978) 290-0266.

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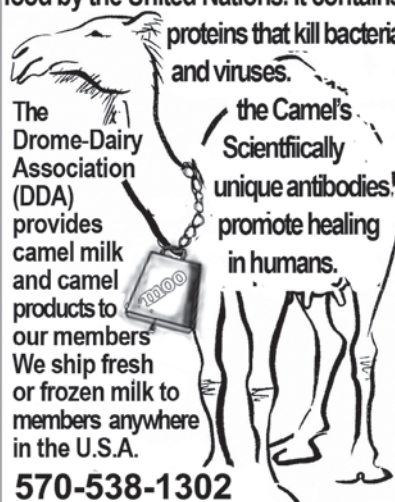
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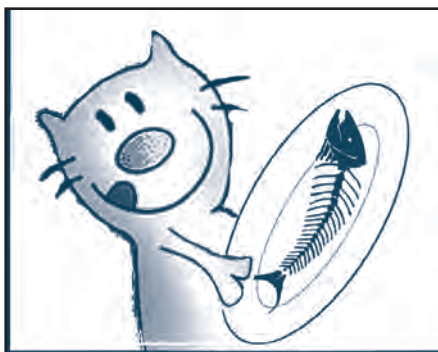
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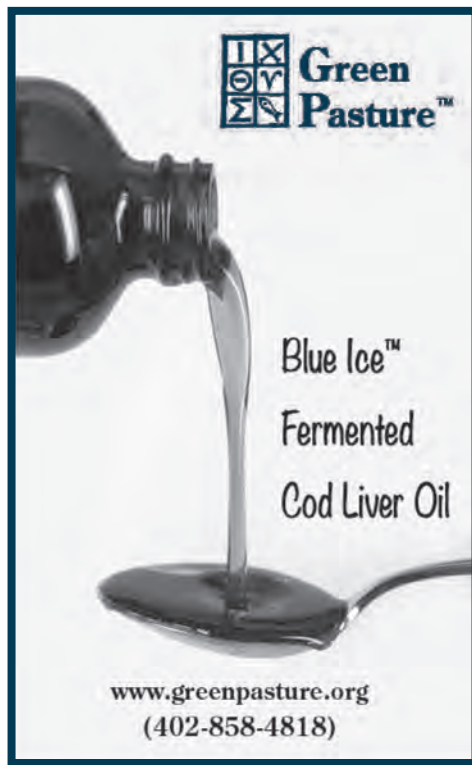


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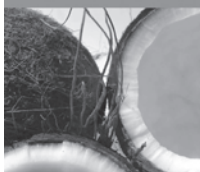


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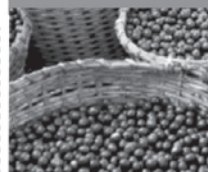
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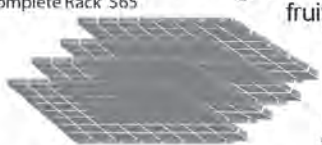
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The second manual, *Iqaluich Niginagtuat, Fish That We Eat*, provides information regarding the traditional use of fish, their processing, recipes and eating enjoyment. It was compiled from the local traditional fish knowledge of northwest Alaska and was partially funded and placed on the web by the U.S. Fish and Wildlife Service.

The third manual in this series will similarly detail the traditional Inupiat processing techniques and recipes for sea mammals.

Presently there is no funding to support this work. Any suggestions would be welcome. The web link to *Iqaluich Niginagtuat, Fish That We Eat*, is below. The report is located under the U.S.F.W. Northwest AK section. From here you can read it and/or download and print it. It should be printed double-sided due to the length (341 pages), including 100+ color photos, sketches.

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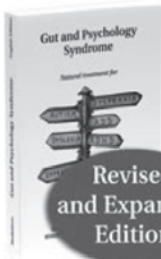


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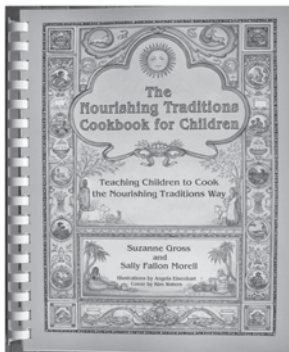
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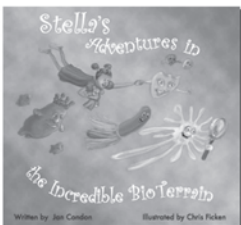


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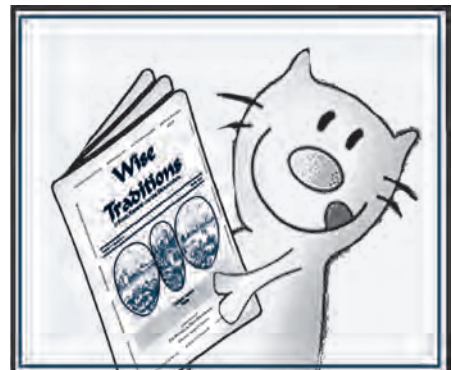


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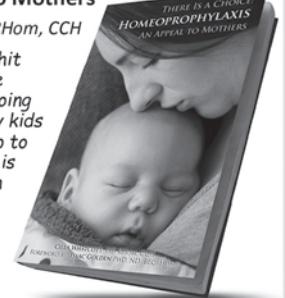
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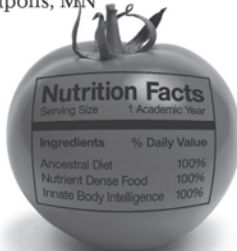
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